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SYMPOSIUM ON BLASTOMYCOSIS.

I.

ON THE BACTERIOLOGY AND PATHOLOGY OF THE BLASTOMYCOTIC INFECTIONS.*

By H. WINDSOR WADE, M. D.,

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It may be accepted as axiomatic that the appearance of a number of cases of any disease in a community in which it had previously seldom been recognized, stimulates the desire for information as to the nature of that disease. Since the condition known as blastomycosis has heretofore seldom been brought to the attention of the local profession, and since it is probable that instances of this disease have not infrequently been overlooked through a lack of familiarity with it, it is hoped that a discussion of its essential features will prove of interest and value to this Society.

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Blastomycosis is a disease produced by an organism which belongs to the group of molds, though it is also related to the yeasts. In the body tissues it appears only as single, yeast-like cells, but when cultivated artificially the organism assumes much the appearance of an ordinary cottony mold. The infection, in the majority of instances, is confined to the skin, and the finding of a case of cutaneous blastomycosis is not unusual enough to occasion remark, at least in the practise of dermatology. In this connection, it is interesting to note that because of its primary isolation from cutaneous lesions the pathogenic blastomycete was originally named the blastomycete dermatitis.

The cases of systematic infection by this organism are much less frequent than the cutaneous, and until recent months the possibility of its occurrence has been largely overlooked in this community. The majority of cases reported in this country have been from the vicinity of Chicago, in fact the disease is sometimes spoken of as "Chicago disease." The medical profession there is on the watch for it, and probably the most of the cases occurring there are recognized. How many cases might be found in New Orleans at the present time is purely a question for speculation. It is significant, however, that at the Charity Hospital alone five cases have died within the past year. At least two other cases are known to have been found in the private practise of certain local physicians.

In a discussion of blastomycosis much emphasis should be laid on the difficulty of recognizing the condition clinically. Few diseases have so little individuality, and cases of this infection are usually diagnosed as tuberculosis, whether pulmonary or surgical or both.

This difficulty of diagnosis and confusion with tuberculosis is very well illustrated by the cases studied in the Pathological Department of the Charity Hospital. Of the five cases in this series, four were thought, by some at least, to have had pulmonary tuberculosis. One of these was diagnosed tuberculosis complicating pellagra. In this case the only skin lesion which was studied microscopically proved to be blastomycotic and the lung condition was apparently due to both the tubercle bacillus and the blastomycete. Another case on first admission had been diagnosed simply multiple subcutaneous abscesses. Later this patient returned with a supposed epithelioma of the face which on his-

tological examination was found to be blastomycosis. Still another patient was operated upon repeatedly for tuberculous abscesses and sinuses of the chest wall. After the sixth operation, a piece of tissue was sent to the laboratory for microscopic examination and the correct diagnosis was then established. These details are given solely for the purpose of emphasizing the fact that even advanced blastomycosis may not be recognized unless one is particularly on the lookout for it. Furthermore, the microscope is essential in determining the condition. This is indicated by the fact that in all of the above cases the correct diagnosis was first established in the laboratory.

Blastomycosis is peculiar in that the morphology of the causative organism in the tissues and exudates differs so markedly from the growth that occurs on culture media. The mature organisms as found in the lesions, whether of the skin or the deep organs, are firm-appearing, single cell-bodies, usually spherical in outline and possessing doubly contoured, highly refractile cell-membranes which vary in thickness and may at times be absent. The cell itself varies from the size of a leucocyte to twice this size or more. The membrane or shell which appears upon the sclerotic cells from tissue lesions is the striking feature of the organism when found in the fresh exudate. It is composed of a specialized material which resists the digestive action of antiformin or of 20% potassium hydroxid. These reagents applied to such materials as sputum, digest tissue cells and debris and render the search for the yeast cells more simple, making them stand out conspicuously in the background of debris.

Since there is nothing distinctive about the protoplasm, the yeast cells are usually recognized in stained sections of tissues by their capsules, which ordinarily appear as unstained halos. When, however, Mallory's anilin-blue connective tissue stain is used with Zenker-fixed tissues these membranes appear as beautifully clear, blue rings about red-stained, granular protoplasm. The apparent adantages of this stain have, it would seem, not been recognized by the majority of students of this disease.

Multiplication of the organisms in the tissue takes place by a budding process typical of yeast cells. At some point on the periphery of the mother cell a bulb or bud of protoplasm is slowly protruded and finally nipped off. The daughter cell, which is usually smaller than its parent, develops a separate capsule and

leads an independent life. This process, at times with certain modifications, is apparently the only one by which this type of organism multiplies in the animal body. It is distinctly different from the mode by which reproduction occurs in the causal organism of the coccidioidal granuloma of the Pacific Coast. In that condition there appear more or less numerous secondary cells or spores within the bodies of the mother cell.

When the blastomycete is cultivated artificially the same strain of organism will show quite striking differences under various conditions of temperature, æration, moisture, etc. Quite typical, however, is the mycelial mode of growth, in which long, irregular strands develop, divided into cells by transverse walls or septa. These strands or threads by much interlacing and apparent branching give rise to a more or less downy, white growth, often spoken of as "cottony." Such growth of the organism is practically never seen in the animal tissues.

It would be out of place here to detail the many appearances which these organisms may assume under various conditions of cultivation. It has been asserted that all of the variations that have been described by various authors may be seen at one time or another in different cultures of the same strain. There is evidence, however, that not all of the strains isolated from essentially similar clinical cases are alike. It seems probable, therefore, that a number of more or less closely related molds may give rise to conditions which are essentially the same. Organisms apparently identical may in one individual produce only a localized, superficial lesion and in another give rise to an extensive disease process which may not infrequently be fatal. On the other hand, one at times finds distinct differences between strains of organisms isolated not only from the two types of cases, but from different cases of the same type.

The source of infection in blastomycosis is a matter of much interest, but usually difficult of determination. There have been occasional instances of probable subinfection from other cases, but these are not numerous. Interesting evidence has been advanced, most particularly by Stober, who studied a series of cases occurring in the Cook County Hospital, which would make it seem probable that under favorable conditions certain ordinary types of molds such as those seen living as saprophytes on decaying wood and in damp, dirty bed-clothing may become disease

producers. This was indicated by a study of the conditions under which certain of his cases had lived, particularly with reference to the hygiene, or lack of it, of their habitations. Animal experiments with moulds isolated from the woodwork, bed-clothing, etc., of these places seemed to substantiate this conclusion.

The organism of blastomycosis, in contrast to that of the coccidioidal granuloma, is one of low virulence or pathogenicity. It is, in fact, easier to cultivate it artificially on dry bread or old leather than to produce with it a lesion in the ordinary laboratory animal. For this reason it may be assumed that the conditions which determine the infection of an individual with such an organism must be quite different from those applying in a virulent infection. A virulent streptococcus will cause damage if *permitted* to do so by a simple abrasion in the skin of a healthy individual. The blastomycete, to the contrary, must be *induced* to infect one by a combination of factors such as (1) lowered resistance of the patient by poor diet, exposure or prolonged dissipation, (2) an artificial opening in the skin or mucous membranes, (3) inoculation of a considerable number of organisms and, possibly, repeated inoculations.

Whether a special sensitization might develop may be controverted on the ground that there is a comparatively light general reaction of the host to the infection, and a very slight production of the demonstrable specific protective substances of immunity. On this last point it need only be said that serum tests with the organism or extract of the organism seem to be of little practical value.

PATHOLOGY.

The present consideration of the pathology of this infection will of necessity be very brief, attempting rather to establish the general type of lesion, than to detail the appearance and the result of the infection in the various structures.

Certain features of the pathology stand out so clearly that they should be emphasized. They are (1) the frequent resemblance of the lesion to tuberculosis, (2) the great range of possible lesions in the body and the multiplicity of infection foci in individual cases, (3) the abscess formation, not infrequently with secondary infection of apparently harmless organisms, and (4) the frequency with which the bony structure is attacked. An-

other point, one which applies to the cutaneous lesion only, is the peculiar epithelioma-like reaction on the part of the epidermis. In sections of the lesion is seen a remarkable hyperplasia of the lower layer of the epithelium, which grows irregularly down into the infected subjacent connective tissue. The appearance which results is very suggestive of an epidermoid carcinoma and the delusion may be increased by the finding of mitotic figures in the epithelium. Undoubtedly many blastomycotic lesions have been excised, diagnosed as epidermoid carcinoma, and cure of the carcinoma credited to simple excision. Such lesions have led to the consideration of the yeasts as one of the causes of carcinomata.

As a whole, the lesion of blastomycosis is primarily proliferative, and is spoken of as an infectious granuloma. This groups it together with such infectious processes as tuberculosis, syphilis, leprosy and glanders.

Not only is the gross appearance of a blastomycotic organ often that of tuberculosis, but the resemblance extends to the microscopic section. One finds, particularly in the lungs, a similar proliferation of the fixed tissues in the form of epithelioid cells, often with giant cell formation. These cells when present usually contain yeast organisms. Leucocyte infiltration and necrosis occur much as in tuberculosis. A small lesion in the gross often appears caseous. Very frequently there is also an acute polymorphonuclear leucocytic infiltration which, together with tissue necrosis, leads to abscess formation. This may occur while the lesion is very small, as in the pinhead abscesses in the skin lesion, or not until the affected area is large. At times there is secondary bacterial infection while usually there is none in the deeper lesions. This secondary infection in lung lesions produces suppurating cavities in the same manner as in pulmonary tuberculosis. On the other hand, one may occasionlly find numerous organisms in a tissue as the spleen with little or no cell reaction as a result of their presence.

As to the distribution of the lesions in systemic blastomycosis, I can best quote a part of an as yet unpublished report by Dr. T. D. Hurley, of Kansas City, who studied the condition last year in our laboratories:

"In a total of 21 cases which have been autopsied, including 4 of the Charity Hospital cases, the skin or subcutaneous tissues had shown lesions in 20 cases, or 95%; the same percentage of lung

involvement was found, one case having apparently escaped. Bone lesions occurred thirteen times, spleen twelve, liver nine, brain and meninges eight, kidneys seven, lymph nodes six, prostate four, pleura or pleural fluid four, pancreas three, spinal cord, epididymis, pericardial fluid and heart twice each, and testicle, larynx, eye and appendix once each."

Totalling these figures reveals the fact that in these twenty-one cases there were on the average 5.6 different tissues showing infection-foci. This does not include the number of different foci in, for example, the skin or the bones of a single case, which at times is large. The point of entrance in the cutaneous infections is undoubtedly a local lesion of the skin, with direct inoculation. In the systemic infection, however, the organism apparently gains entrance through the respiratory tract in the majority of instances.

With this sketchy introduction to the pathology of blastomycosis, I must leave the further elucidation of the subject to the speakers who are to follow.

II.

MEDICAL ASPECTS OF SYSTEMIC BLASTOMYCOSIS.*

By GEORGE S. BEL, M. D.,

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Cutaneous blastomycosis has long been a fairly well-known condition and is not at all uncommon. Systemic blastomycosis, however, is quite infrequently observed, the total number of reported cases is still quite small, and the localities from which it has been reported are not numerous. Our experience of the past year in New Orleans makes it seem probable that more careful search would bring out a number of cases heretofore considered to be tubercular infections.

From the limited number of cases that my colleagues and myself have observed at the Charity Hospital, little can be added to the conclusions drawn by previous writers as to the essential pathology and the clinical manifestations of the disease. It is not our intention by this paper to convey the impression that any distinct physical signs or clinical symptoms have been found to differentiate this disease from other allied pathological conditions. It is not a difficult matter to diagnose systemic blasto-

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mycosis when cutaneous evidences are present with the continued absence of the tubercle bacilli in the internal lesions; it is the absence of cutaneous lesions and tubercle bacilli which makes the diagnosis difficult.

The study of pathological activities of blastomycetes dates practically from the discovery of Busse[1] in 1914 of a generalized fatal infection caused by a yeast. Since then scattered cases have been reported from this country and abroad.

The disease seems to be more frequent in early adult life and far more common in men. In our series of five cases three occurred in colored and two in white males. The occupations in all involved hard labor. There is no positive evidence concerning the direct and hereditary conveyance of this disease. All the above cases were natives of Louisiana. The same unhygienic general conditions which govern the development of tuberculosis are important factors, not only in predisposing to infection but in furnishing suitable conditions for the development of the blastomycetes.

The respiratory tract seems to be the frequent point of entrance in systemic blastomycosis. In a large percentage of cases as emphasized by Stober[2] the first symptoms were referable to the bronchi and lungs and, as he states, it is possible that the subcutaneous abscesses or cutaneous lesions marking the onset in the other patients were due to metastasis from unrecognized pulmonary lesions.

Mallory[3] and others believe that the infection begins practically always in the skin and usually remains localized there, but that the organism occasionally invades the circulation and causes lesions in distant parts of the body.

Blastomycotic lesions have been found in nearly every organ of the body, but the tissues of predilection are apparently the skin, lung and bone.

The composite clinical picture in our series of cases shows that the illness began with a cold, cough varying in intensity, fever, pain in chest especially referred to side, sweats, dyspnœa and expectoration of varying quantities of sputum, mucopurulent or purulent in character, frequently containing blood. The amount passed was at times large, at other times quite small. No large hemorrhages occurred except in case No. 2, which was complicated with pulmonary tuberculosis. As the disease ad-

vances the cough becomes more troublesome and expectoration more abundant. The temperature is that of a septic process, being distinctly intermittent or hectic in type and associated with sweats, occasionally chills, emaciation, loss of strength, rapid pulse and subsequent development of the characteristic cutaneous and subcutaneous lesions. Pain was present in abscess formation especially those involving or pressing upon bony structures.

The blood picture was one of secondary anemia. A leukocytosis was present in our cases, averaging between 10,000 and 16,000. This we concluded to be due to secondary invasion. Albumen and casts were present in the urine of all cases.

The essential fact in the diagnosis of blastomycosis is the presence of the blastomycetes in the exudate or tissues of various lesions. The organisms were found in the sputum of the two cases in which they were sought, and in the pleural fluid of one.

Stober[4] in his magnificent study on blastomycotic infection has compared the conditions with which blastomycosis may be confused and lays down important differential points as follows:

COCCIDIOIDAL GRANULOMA: That this disease from a clinical and pathological point of view closely resembles blastomycosis is generally conceded. The principal differential points advanced by the various authors are that in the former the nodular lesions resemble more closely those of tuberculosis, there is a greater tendency to involvement of the lymph nodes; the cutaneous lesions are more ulcerative; the average duration of the disease is shorter than in blastomycosis, and reproduction of the organism in the tissues occurs principally by endosporulation. Up to this date no case has been found in this locality.

EPITHELIOMA: The principal points are the slower growth of the tumor,, the greater induration extending into the tissues beyond the ulcer margin, and the absence of the bluish red halo surrounding the border which contains the characteristic miliary abscesses and in which the blastomycetes are found.

TUBERCULOSIS: As far as the symptoms of pulmonary infection are concerned, the clinical pictures of the two diseases are so similar that differential diagnosis is extremely difficult. Tuberculosis is the more destructive of the two, and cavity formation and marked hemoptysis are therefore more common. The examination of the sputum in most cases, of course, gives evidence of the condition present, and blastomycetes should be looked for

in those cases of suspected tuberculosis in which the tubercle bacilli are persistently absent.

SYPHILIS: The complement binding tests and blastomycetic vaccine reaction are suggested as differential. The absence of the first and positive reaction with the second would appear sufficient to rule out lues. Finding the organisms in exudates or scrapings would establish the diagnosis.

The blastomycetic vaccin filtrate, according to Stober and Hektoen, may prove to be of much diagnostic value. A distinct inflammatory reaction was observed in the local lesions after the injection of a blastomycetic vaccin filtrate. In three cases not far advanced there has been reported rise of temperature in from 6 to 24 hours after the injection. The temperature in some instances persisted for two days. Such a rise in temperature did not occur in two cases of syphilis, three cases of tuberculosis and three normal subjects who were subjected to the test.

The prognosis of systemic blastomycosis is extremely grave. In our series all died, but it must be remembered that in but two of our cases was the diagnosis made before death and that these patients were *in extremis*. It is stated the average mortality of such infections has been ninety per cent.

The treatment consists of prophylactic measures, fresh air, sunlight and other measures which prevent mold development. Increasing the patient's powers of resistance by strict atatention to hygiene, careful feeding and proper climatic conditions will be of benefit. Potassium iodide in large doses has given the best results, according to reports. The X-ray may prove of some benefit in certain cases and I would advocate its use. It is to be hoped that in the future vaccination with blastomycetes and their products will prove a valuable therapeutic agent.

A synopsis of the five cases which have occurred in the various services at the Charity Hospital is given below. A more complete pathological and clinical study of these cases is to be published later.

Case I. H. J., a colored male laborer, age 32, single, a native of Louisiana, was admitted to the Charity Hospital, Ward 34, January 22, 1914.

Complaint: Pain high in right chest, cough and fever.

Examination: Evidence of consolidation in right lung, with pleural involvement. Less extensive on left.

Course: Septic, with subcutaneous abscesses, usually healing

quickly after opening. Pulmonary condition progressed. Died May 19, 1914.

Clinical Diagnosis: Pulmonary tuberculosis, (probable). (Failure to find tubercle bacilli in sputum, etc., made this doubtful).

Anatomical Diagnosis, Corrected, (A-14-175, by Dr. H. W. Wade), Blastomycosis of lungs, spleen, liver and pancreas. Blastomycotic abscesses, cervical, pulmonary and pancreatic, with secondary diphtheroid invasion. Fatty myocarditis. Acute parenchymatous nephritis (marked). Congestion and edema of lungs.

Case II. M. K., a colored male laborer, age 18, single, native of Louisiana, was admitted to the Charity Hospital, Ward 34, July 4, 1914.

Complaint: Cough, weakness, diarrhea, skin lesions.

Examination: Signs of pulmonary tuberculosis. Skin lesions of wrists, ankles and mouth suggest pellagra. Ulcers, inguinal and sacral.

Course: Typical of pulmonary tuberculosis. One hemorrhage. Acid-fast bacilli found in sputum on two examinations. Died July 28, 1914.

Clinical Diagnosis: Pulmonary tuberculosis and pellagra.

Anatomical Diagnosis, Corrected, (A-14-274, by Dr. T. D. Hurley), Blastomycotic dermatitis, pulmonary tuberculosis and blastomycosis. Hypertrophy of heart. Chronic passive congestion of liver. Acute and chronic nephritis. Pellagra (?).

Case III. J. P., a colored male laborer, age 36, native of Louisiana, was admitted to the Charity Hospital July 31, 1914.

Complaint: Abscesses of chest wall and ankle, cough and fever.

Examination: Five abscesses of chest. Lungs—slight dullness and rales.

Course: Progressively worse, abscesses at various points on body and increasing pulmonary disturbance.

Clinical Diagnosis: Chronic Pulmonary Tuberculosis; Multiple Chronic Tuberculous Adenitis; Tuberculosis of the skin.

Anatomical Diagnosis, Corrected: (A-14-352, by Dr. T. D. Hurley), Systemic blastomycosis, involving lungs, liver, kidneys, lymph nodes, skin and subcutaneous tissues; Acute fibrinous and chronic fibrous pleuritis, with effusion. Acute and chronic splenitis. Dilatation of the heart. Passive congestion of the liver.

Case IV. R. B., white male laborer, age 30, a native of Louisiana, was admitted to the Charity Hospital, Ward 68, August, 1912.

Complaint: Abscess (tuberculosis ?) of back, cauliflower skin lesions of hand and foot.

Course: Marked improvement of abscess.

Discharged: October 8, 1912, with diagnosis of papilloma of hand and foot. (After this patient spent nearly three months in a tuberculosis camp, then worked for ten months).

Readmitted: October 17, 1913, ward 68, for abscess of back and necrosis of ribs, probably tuberculous.

Course: Condition progressed. Curetted several times, and rib resections performed. Tissue was sent to laboratory September 29, 1914, and diagnosis of blastomycosis then made. Lungs and other structures became involved. Died February 3, 1915.

Clinical Diagnosis, Corrected: Systemic blastomycosis, involving lungs, cord, back, ribs, vertebrae, face, thigh and knee. Secondary streptococcic invasion of certain lesions. (Autopsy was not permitted).

Case V. White male laborer, age 61 years, a native of Louisiana, was admitted to the Charity Hospital, Ward 12, (Tuberculosis Division) May 14, 1914.

Complaint: Pain in chest, cough and shortness of breath.

Examination: Dullness over both upper lobes, and rales everywhere. Sputum negative.

Transfers: May 25, 1914, to Ward 16, with diagnosis of bronchial asthma and valvular cardiac disease. July 6, 1914, transferred to Ward 66, on account of lesions thought to be epithelioma of cheek and sebaceous cyst or abscess of scalp.

Course: Abscess drained, tissue removed from face July 13, 1914, diagnosed histologically as blastomycosis. Abscess of right elbow developed. Deserted August 13, 1914.

Readmitted: November 11, to Ward 71. Previous conditions, cardiac, pulmonary and superficial, much aggravated. Died January 18, 1915.

Anatomical Diagnosis Corrected: (A-14-25, by Dr. T. D. Hurley). Blastomycosis of face, scalp, chest and arm. Blastomycosis of ribs and of bones of skull, right arm and right forearm. Blastomycosis of heart and pericardium, lungs, spleen and brain, and meninges.

CONCLUSIONS.

The report of these cases shows the presence of systemic blastomycotic infection in our vicinity and emphasizes the frequent confusion of such cases with tuberculosis and other infections.

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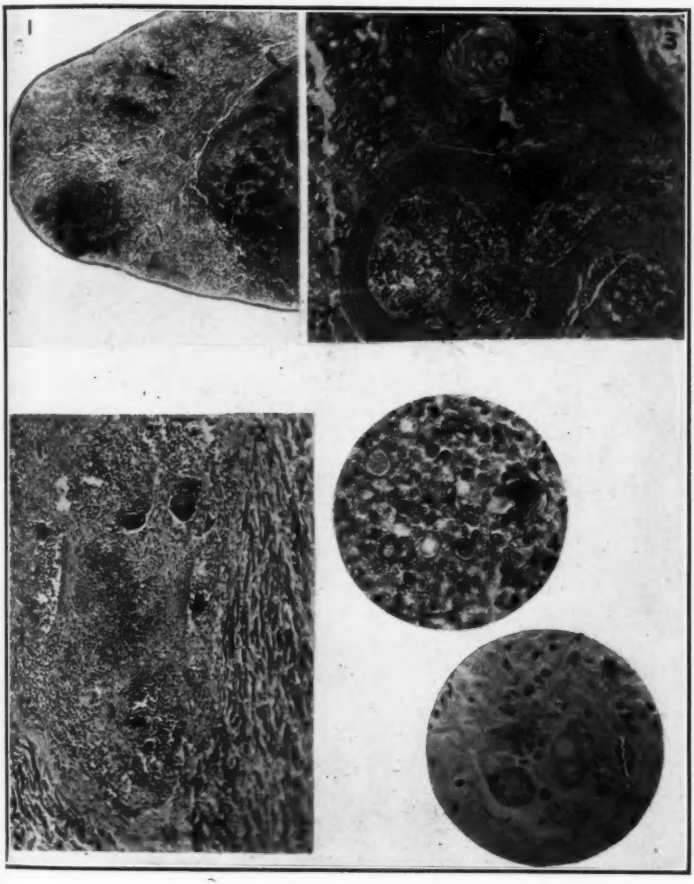

ILLUSTRATING DR. WADE'S ARTICLE.

(Symposium on Blastomycosis)

1—Taken April 15, 1915. 2—3 months later. 3—Taken April 15, 1915.

ILLUSTRATING DR. MENAGE'S ARTICLE.
(Symposium on Blastomycosis)

III.

CUTANEOUS BLASTOMYCOSIS.*

By H. E. MENAGE, M. D.,

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This brief paper will deal only with the cutaneous appearance of blastomycosis. A fully developed case of blastomycosis, with all its characteristics present and undisturbed, is usually easy of diagnosis, even without the microscope.

Although Gilchrist, of Baltimore, deserves the credit as the earliest observer, American, at any rate, of blastomycosis, I believe the best description of the disease can be found in articles by Hyde, Montgomery and Ormsby, of Chicago, who recognized and described the first cases in the Middle West, where the disease seems to be very common. The disease, according to them, begins as a small purplish-red papule or papulo-pustule the size of a pea, which soon covers over with a crust. At this stage it would be almost impossible to name the disease, except after the microscopic examination; but as time goes on its characteristics become manifest. The small lesion grows into an elevated patch, 1/8 to 3/8 of an inch above the surrounding skin, with a marked papillomatous tendency, so often compared in appearance to a cauliflower; the papillæ bleed easily and from the mass can be squeezed out a sero-purulent secretion. The small crusts of coagulated blood cap the papillæ, so that the whole surface of the lesion seems to have been sprinkled with black pepper; a picture fairly characteristic. The border of the diseased area is one of its most characteristic features. It slopes more or less abruptly from the elevated roughened surface to the normal skin, from which it is sharply defined. It is smooth, of a dark-red or purplish-red color and is from 1/8 to 3/8 of an inch wide. On close inspection, even with the unaided eye, may be seen numerous miliary abscesses containing a thick glairy secretion, which becomes pustular as the lesion grows older.

It is in these small abscesses that almost pure cultures of the blastomyces are to be found. Barring the microscope, the purple-red color, the crust-capped papillæ, the elevated sloping border,

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with miliary abscesses, are, I believe, the most diagnostic clinical features of the skin lesions of blastomycosis.

Recently, Cuban observers have described some different clinical types of the disease on the skin, but they are comparatively rare and only the microscope will reveal their true nature, and, therefore, these will not be considered at this time.

Whenever confronted by a skin disease answering the above description, one should not overlook other possibilities, among them chiefly syphilis of the hypertrophic tract, sporotrichosis, epithelioma and especially tuberculosis of the varicose type, which last disease closely resembles blastomycosis, the microscope being necessary, in most instances, to solve the problem.

The selected location of blastomycosis is principally on the hands and face, probably because those regions are most exposed to infection; but the disease may be found anywhere over the body, including the mucous membranes. When on the face and along the lower eyelids, ectropion follows healing of the disease, giving the patient the appearance of an old lupoid case. Such a case I have had in my service recently.

Seventy-five per cent of the cases occur in men and for the most part in those over forty years of age.

History of the Case and Presentation of Patient: William S., negro, aged 55, born in Louisiana and farmer by occupation, was admitted to my service at the Charity Hospital, New Orleans, on or about April 15, 1915. He is a tall, comparatively well-fed negro, with a negative family history for cancer and tuberculosis, with the usual childhood diseases and gonorrhea five years ago. Von Pirquet tuberculin test negative, Wassermann and Tschernogubow reactions negative; no albumin, no sugar, hyalin and granular casts present. Present illness dates back four years, when he noticed "a small sore on hip, calf of leg and on the face."

Upon admission, as photographs and lantern-slides will show, he presented numerous large papillomatous lesions, involving the whole right half of his face and extending to the neck almost to the median line posteriorly. The whole surface was covered by a thick, offensive crust, which necessitated the persistent use of poultices to remove. I am pleased to be able to show you the patient to-night, almost completely recovered.

As far as memory serves me, this is the only case of proven blastomycosis of the skin in a full-blooded negro that I have seen in my service.

IV.

REMARKS ON THE SURGICAL ASPECTS OF SYSTEMIC BLASTOMYCOSIS.*

By RUDOLPH MATAS, M. D., LL. D.,

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The question that I have been invited to discuss may be squarely put by stating: What can surgery do for patients suffering with the systemic lesion of blastomycosis? By the intervention of surgery in this disease as in all other grave constitutional infections, we must circumscribe our definition of surgery to those procedures by which the disseminated lessons of blastomycosis may be eradicated or palliated by direct operative methods of treatment. In dealing with the purely localized primary lesions, especially the more frequent cutaneous lesions, surgery has everything to do with the cure of the patient. Because, as in all other localized infections, the complete surgical removal of the primary focus or foci is tantamount to the suppression or radical cure of the disease. But when the disease has spread from its original atrium of infection, by metastases through the blood or the lymphatics, and has, in this way, attacked distant tissues and organs simultaneously or consecutively, it is quite evident that the power of surgery is immediately dislocated from the highest curative plane to the very humblest secondary role, as a mere adjuvant to the constitutional measures that have been described under the internal or medical treatment.

You might as well ask what can surgery do for systemic, disseminated tuberculosis, syphilis, leprosy or cancer, as to ask, with even greater insistence, what can surgery do for blastomycosis when this has been generalized by metastatic dissemination? It is quite plain that surgery can only deal with lesions that are accessible to the surgeon, but, when these are widely distributed over the organism, the removal of isolated lesions, can only palliate certain symptoms or conditions; the cure of the disease being made possible only through such general and constitutional agencies as will strengthen the natural defenses of the organism until spontaneous immunization has been obtained, or, when specific agents, when these exist, bring about such immunization by artificial means.

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If we now supplement these a priori considerations of what we know of the clinical facts and history of this disease,—since we first learned to recognize its systemic manifestations,—then the answer to the question, What can surgery do for the cure of systemic blastomycosis? may be boiled down practically to a small residue which is summed up in one word—Nothing!

What is worse, if I may judge by my personal observation of the comparatively few, but typical, cases of systemic blastomycosis that have come under my observation at the Charity Hospital and elsewhere, it does not appear that the addition of the constitutional measures of treatment now known to us, and which are calculated to reinforce the local treatment, exercise any decisive influence upon the final course of the disease, which is admitted to be fatal by the most experienced authorities in not less than 90% of the cases.

The gist of the whole matter was summed up in the closing remarks of Dr. Charles A. Powers, of Denver, who discussed the outlook of blastomycosis from the surgeon's point of view at the meeting of the American Surgical Association held in New York, in 1914. He says:

"The central thought in my mind is that the systemic form of blastomycosis is almost invariably fatal. This grave condition generally begins in a small local focus. I believe that such local focus or foci, when accessible, should be widely excised as early as possible in order to attempt to forestall dissemination."

In other words, the only opportunity to cure blastomycosis by surgery is when the disease is still local. When it is systemic, generalized, and widely distributed, it is helpless, except as a mere palliative.

Blastomycosis and Coccidioidal Granuloma: Considerable confusion has been caused in the bacteriologic and clincal study of blastomycosis by the effort to differentiate the infections caused by the budding fungi (blastomycetes) and those which multiply by sporulation or endogenous proliferation (oidiomycosis or the so-called coccidioidal granuloma). Some of the facts pertaining to this discussion are not without relevancy in a symposium such as this, which is intended to be educational rather than critical or controversial. The essential features of this question are that, according to a considerable number of competent observers, there is a specific form of infection which causes

characteristic granulomatous lesions in which the causative organism is a sporulating fungus, quite distinct in its morphological, cultural, and clinical characteristics from the true blastomycetes or budding fungi which we have been considering. It is claimed furthermore that this type of fungus is quite limited in its geographical distribution. Up to the present time about 24 cases of this type of mycotic infection (Coccidioidal granuloma) have been reported, and nearly all have occurred in the San Joaquin valley of California, with the exception of an isolated case reported by Wernicke and Posadas in Montevideo, Uruguay, in 1892, and the case reported from Denver, Colorado, by Dr. Powers, in 1914. The first two cases discovered in California were identified, and reported by Dr. Emmett Rixford, of San Francisco, in the *Occidental Medical Times,* in 1894, under the title of "Protozoic Dermatitis." Dr. Rixford, at that time, believed that the spherical and sporulating organisms that he saw were protozoa, allied to the coccidia. He sent his material to Dr. Welch, of the Johns Hopkins Hospital, who gave it to Dr. Gilchrist for study. A joint report was published in 1896 in the Johns Hopkins Hospital Reports under the title, "Two Cases of Protozoan Infection of the Skin and Other Organs." Dr. Stiles, of Washington, a well-known authority on protozoa, suggested the name *"Coccidioides immitis"* for this organism, and most of the cases subsequently reported have been styled "coccidioidal granuloma." Other cases began to appear. Dr. D. W. Montgomery, of San Francisco, came very near identifying the true fungus nature of this parasite. He made cultures, but found mycelia present in all his tubes. These he threw away, believing them contaminated. It remained for Dr. W. Ophuls to observe the mycelia growing out of the spherical organisms in the hanging drop, which observation put an end to the notion that these organisms were protozoa. Ophuls suggested the name *"Oidiomycosis coccidioides,"* but "coccidioidal granuloma," which suggests a protozoan resemblance, has clung to the nosology.

Rr. Rixford, from whom I have quoted this bit of history, also states in his discussion of Dr. Powers' paper at the meeting of the American Surgical Association, 1914, previously referred to, that

"all cases of this particular type of mycotic infection have been fatal, with one exception, which was cured by an early amputation. In his

first case, in which the disease lasted seven years before the patient died, it invaded both orbits, destroyed both eyes, both ears and lips. It invaded the bones and internal organs, particularly the lungs and testes, and the adrenals were as large as duck's eggs. A second case differed from the first in that the disease was much more virulent, the patient dying in two months."

Drs. P. K. Brown and W. Taylor Cummins, of San Francisco, have recently reviewed, with great thoroughness, the differences existing between the so-called "coccidioidal granuloma" and blastomycosis. In the *Archives of Internal Medicine* for April, 1915, after an exhaustive study, they conclude that there are well de-defined differences in the pathogenicity of the two diseases, coccidioidal granuloma being always fatal and often rapidly fatal in man, while blastomycosis is commonly not so, except for the systemic cases, in which the organisms have been found associated with bacteria of known and unknown pathogenicity (Zinssen, Hektoen, Gilchrist and Stokes). The clinical and pathologic aspects of coccidioidal disease are those more clearly resembling tuberculosis, as there is a greater predilection for the lymphatic system than there is in blastomycosis, and cutaneous lesions are likely to be more ulcerative. There appears to be but one reported case of coccidioidal disease in the female sex, whereas there have been many of blastomycosis. Iodids have markedly benefited many, and apparently cured a few blastomycosis patients, whereas they have had no effect on the rapidly progressive lesions and toxemia of coccidioidal granuloma.

The two organisms, however, appear to be closely related, having much in common, but with such differences as to justify the conclusion that they are distinct entities. Morphologically, in pus and solid tissues they are differentiable by endosporulation in the one and budding in the other. Cultural differences are not so pronounced, although Brown and Cummins have found that growth is initially more rapid with coccidioides. Blastomycetes appear to grow best at room temperature 20° C; coccidioides, at 37° C. Various dyes show some differences in the inhibition of growth. Rabbits and guinea pigs are more resistent to blastomycetic than to coccididioidal infection.

Diagnosis.—The essential factor in the diagnosis of this disease is the demonstration of the blastomycetes in the sputum or in the pus of various lesions. This can usually be done so easily

that there would seem to be no excuse for not recognizing the disease when it exists.

Stober cautions, however, that the organisms are easily overlooked in stained preparations, and examinations of fresh material are not a common routine practice. The mere histological picture of the tissue is not sufficient; it *is suggestive,* when the pathologist is thoroughly roused to its possible presence, but the giant cell grouping in the granulomatous tissue might easily pass for tuberculosis and, in this way, the real causative factor is overlooked. It happens, therefore, that the organisms in most cases have been found only when sought for and when the nature of the disease has been suggested by its clinical or pathological features.

Blastomycosis should be ruled out in all cases of chronic pustular or ulcerative lesions of the skin, wasting pulmonary diseases in which there is a persistent absence of the tubercle bacillus in the sputum, in all superficial or deep abscesses especially when connected with bones, suppurative arthritis and suspected Pott's disease. In the clinical study of blastomycosis it should be remembered that systemic infection usually takes place through the respiratory tract, and that the cutaneous manifestations are followed by systemic invasion with comparative rarity. It should also be remembered that the blastomycetic infections are essentially of a pyogenic character and that the pus wherever found is likely to contain the characteristic organism. In the skin, the encircling wreath of minute miliary abscesses or pustules on the periphery of the ulcers and granulomatous, fungoid, or papillomatous, areas is most characteristic. Abscesses in the subcutaneous tissues, lymphnodes, muscles, bones, nervous tisssues and viscera are characteristic of this pyogenic tendency.

"The size of these abscesses is most variable, ranging from very minute areas to enormous cavities containing a quart or more of pus. Some are painful, others painless. The pus is usually thick and tenacious, making aspiration difficult, and varies in color from a light yellow to a dark red or brown according to the amount of blood present (Stober).

The affections of bone are: Osteomyelitis, periostitis and arthritis. The osteomyelitis which is suppurative in its nature may be diffuse or localized. In either case the fungi are very numerous, involving the marrow compartments and causing necrosis of the marrow, with the formation of purulent exudate.

In the long bones, the infection has a tendency to lodge in the epiphyses, suggesting the appearance of infarcts. Extension from the epiphyses is usually responsible for the joint lesions. The long bones of the extremities, the vertebral column (simulating Pott's disease) and the pelvic girdle, more rarely the cranial and facial bones, and the smaller bones and joints of the extremities, are the seat of the systemic lesions. The X-ray appearances have been especially well studied by Dr. H. E. Potter (Radiologist of the Cook County Hospital, Chicago) and his findings are ably detailed in Stober's report.

This observer believes that the most characteristic features of the X-ray picture in the bone lesions of blastomycosis are: The intense localized nature of the destructive process. The lesions are most numerous and distinct in the long bones. The bone surrounding the ordinary blastomycotic focus presents a normal structure with little tendency to change in density. There is a sharp line of demarcation between bone apparently intact and regions of total necrosis.

"Such a marked localizing destruction occurring within the spongy bone of a diaphysis, together with a mature and homogeneous periosteal proliferation, with or without a cloaca, is so constantly present in the ordinary lesions of blastomycocis, that when seen in further skiographs, where the etiology has not been determined, a careful search for blastomyces should be made." (Potter).

TREATMENT OF BLASTOMYCOSIS.

Prophylaxis—Pulmonary infection through the upper respiratory tract is according to Stober and his associates most often caused by inhalation of mold spores. This can be prevented by proper ventilation, sunlight and drainage of residences and shops, thus preventing the dampness and moisture which favor mold and mildew growth. Cutaneous infections can be avoided by careful cleansing of wounds contaminated with decaying or moldy wood or other vegetable material. Auto inoculation can be avoided by not scratching or by keeping the nails and hands scrupulously clean.

Medical—Spontaneous recovery is possible in less than ten per cent of the systemic cases. The influence of food, climate and hygienic measures is undoubtedly as beneficial in this as in other chronic infection.

Drugs—Potassium iodid exercises a decided beneficial influ-

ence, though it does not cure systemic infections. It is a total failure in the coccidioidal type. Copper sulphate, of which much had been expected at one time, is of no value whatever in the systemic disease. Rœntgen rays are very beneficial and in many instances curative, for the local or superficial lesions, especially the skin infections, as so well shown in the case exhibited here to-night by Dr. Menage. Symptoms of conditions must be met very much as they are dealt with in tuberculosis.

Vaccins with blastomycetes and their products have been prepared by Hektoen and appeared to be curative in one case treated by Stober, but no cures are reported in the other two cases in which it was tried. Vaccins have never been tried in the treatment of our cases in New Orleans. The vaccin treatment is worthy of further trial until a greater experience shall decide its merits.

The *surgical* lesions, especially the more accessible of the skin, should be treated promptly and radically by excision, iodids and X-rays. Abscesses in pus collections, wherever accessible, should be drained and an effort made to disinfect the cavity by filling them up with tincture of iodin. Glands that are breaking down or that are accessible should be extirpated with the primary focus. Nothing can be done with a generalized adenopathy of the systemic disease. Diseased bones and joints should be treated by arthrectomy excision or by amputation.

Dr. Bevan, who has had a large experience in the surgical treatment of blastomycosis, states:

"I have been personally interested in the treatment of this disease and want to emphasize that it rests upon the use of potassium iodide, plus the use of X-rays. In the local cases nearly all are cured with KI and X-rays. None of the systemic cases that have come under my observation have ever been cured by any method of treatment."

In conclusion, the chief value of a symposium on blastomycosis, apart from its educational benefits, is that it rouses the attention of the local clinician and especially the general practitioner, who is most likely to come across these cases, to an important factor in diagnosis which is likely to be overlooked in obscure cases of cutaneous, pulmonary, osseous and visceral diseases. There can be no question that many cases of systemic and cutaneous blastomycosis have been passed by in our midst and have been treated as a typical tuberculosis, syphilis or malig-

nant disease. Thanks chiefly to the alertness of our dermatologists we have recently come to realize that a disease which was practically unknown in our practice is not such a rarity after all. In the course of last winter's session, I had the opportunity, through the courtesy of Drs. Ménage, Parham and Perkins, of presenting a group of four cases, three of which were systemic, at one clinic; an extraordinary occurrence in our local experience. In Chicago, I saw several years ago fully 16 or 20 cases fully illustrating all phases of the disease, in a joint clinic held at Rush, by Drs. Billings, Bevan, Ormsby and others. Dr. Stober, of Chicago, deserves great credit for the thoroughness with which he has investigated the prevalence of this disease in Chicago. His work, in collaboration with a large group of associates, is a model of painstaking research, and, taken collectively, with the contributions of his colleagues, as they appear in the *Archives of Internal Medicine* for 1914 (Vol. 13), is a perfect encyclopedia of information or permanent reference to all those who may seek light upon this new and important subject. In his paper on Systemic Blastomycosis, Stober states that, in 1907, Hektoen reported the first 13 cases; in 1908, Montgomery and Ormsby increased the list to 22; in 1914, Stober himself still further enlarged it to 36, showing an increase of over 200% in the last two years. If we add the five systemic cases observed at the Charity Hospital last winer, which were referred to by Drs. Wade, Ménage and Bel, the list of well authenticated cases of the systemic type is increased to 41. The instructive papers which have been presented to-night by Drs. Wade, Ménage and Bel will not complete the value of the symposium until a full report of the well-authenticated cases observed in New Orleans up to the present time has been presented in the near future to this Society for publication, as a contribution to the regional distribution of this infection in the United States. We have made wonderful strides in our knowledge of this disease, in ferreting out its causes, its pathology, its clinical characteristics and its diagnostic earmarks, but we are far more helpless in dealing with its systemic manifestations than we are with tuberculosis or syphilis and equally as helpless as in cancer or leprosy. From this therapeutic point of view, blastomycosis offers a splendid opportunity for research which will be made greater by the larger

facilities for its local recognition that will follow after such discussions as we have had to-night.

SYMPOSIUM ON BLASTOMYCOSIS. DISCUSSION.

Dr. W. H. Harris: The salient features bearing upon the evening's subject have certainly been clearly and concisely emphasized by the various speakers.

A sputum of a child eight years of age was recently sent to me for examination for **B. Tuberculosis,** with the statement that I should find that organism, as clinically the case was quite typically pulmonary tuberculosis. I made repeated smear examinations and also resorted to the antiformin method, but failed to find any acid fast organisms. I decided it might be well to attempt to find some other etiological factor and upon search for same found bodies in accord with blastomycetes. These were prettily demonstrated upon the staining by Wright's method. I turned over another specimen from this case to Dr. Wade, because of his interest in the subject and I understand he has the culture of it in his stocks. The physician in charge of the case, Dr. Holderith, informs me that the mother has a similar clinical picture to the child. I tried to procure a specimen from this source, but have not succeeded.

I think it is definitely indicated in instances where pulmonary tuberculosis seems evident by clinical examination and where the reports from the laboratory are persistently negative for T. B., that certainly some other pathogenic agent should be looked for. Of course, other conditions besides blastomycosis can occasion a pathological picture capable of producing physical signs and clinical symptoms resembling tuberculosis, such as gangrene of the lung, syphilis, actinomycosis and the like, as well as certain tumor formations. Hence, it is well to look for not only the blastomycetes, but, when possible, also the other causal agents that may give rise to lesions simulating tuberculosis.

The great value of this symposium is quite evident and all will go forth filled with enthusiasm and a desire to ferret out cases of blastomycosis. This is, of course, a great gain, as it is plainly shown, from the papers presented to-night, that much more blastomycosis, at least systemic blastomycosis, is prevalent in our community than has as a general rule been considered by the profession. I feel, nevertheless, that it is timely to sound a note of conservatism as regards the promiscuous application of this diagnosis. There are many yeast bodies and spores of molds that are not unlikely to be confounded with the organism of blastomycosis. Those who are not familiar with its diagnostic features under the microscope, should be careful to avoid being misled by any of these confusing types. This point is especially applicable to sputum examinations, wherein saccharomyctes and various molds may and, in old specimens, are frequently, present.

Dr. Wade (in closing): I am glad that Dr. Harris has brought up the question of contaminating yeasts in sputum and other exudates. To discuss it I must touch on the botany of the organisms in question. The group of pathogenic fungi which cause the disease known as blastomycosis are, it would seem, primarily to be molds and are not true yeasts. They are subdivided according to the manner of growth on artificial culture as (1) hyphomycetoid, (2) oidioid and (3) blastomycetoid, the latter group alone multiplying by the formation of yeast cells.

The differentiating point which serves to identify the pathogenic organism in exudates is the fact that they have the peculiar, firm, doubly refractile cell-wall which has been deposited upon them within the tissuees. This cell is correctly a sclerotic conidium, and to avoid confusion with true yeasts should not be spoken of as a yeast-cell. The yeasts, which are saccharomycetes, seem never to acquire this cell-membrane or shell, whether they develop in the exudate before or after expulsion from the animal lesion. So, if one requires to find true sclerotic conidia before diagnosing blastomycosis, contaminating saprophytic yeasts, present accidentally in the sputum, etc., will not lead one astray. On the other hand it seems possible that disease may be produced by true saccharomycetes, organisms which do not grow as molds in culture nor appear with hyaline capsules in the exudates. I would suggest the possibility that the cases of Dr. Harris and Dr. Lanford belong to this group.

I wish to thank Dr. Harris for his remarks, and for emphasizing the need for caution in ruling out saprophytic yeasts in the diagnosis of blastomycocis.

Dr. Menage (in closing): I have little to add to what has already been said. Pathologists also sometimes make mistakes and contradict the clinician's diagnosis of blastomycosis. I remember a case a few years ago of blastomycosis of the forearm which the pathologists reported as an epithelioma. The lesion was classical of blastomycosis, clinically, and involved the left forearm from the knuckles to the elbow on the extensor surface. The case was cured with large doses of iodid and X-rays.

I made a diagnosis of blastomycosis eight years ago in the case Dr. Bel reports as coming from Dr. Maes' service at the Charity Hospital. The treatment consisted in the administration of the iodids in enormous quantities. The case presented to-night took 180 grains three times a day. Another case I have in mind was given even larger doses, without bad results.

Dr. Matas (in closing). I have nothing more to add to the discussion except to emphasize the importance of continuing the work so well begun to-night, by renewing my suggestion that a permanent committee be appointed by the chair to report at some stated time, on the incidence of blastomycosis in our midst. The majority of

these cases will probably come under observation at the Charity Hospital, where Drs. Wade, Bel, Menage and others, who have enjoyed special opportunities for the study of the disease, will be able to continue their observations. Dr. Patton, the registrar at the Charity Hospital, I am sure, will be willing to help such a committee by compiling the statistics from his well organized records and in this way facilitate the preparation of a report to this Society which will prove valuable as a contribution to the local topographical study of blastomycosis.

MALARIA AND CARRIERS OF MALARIAL INFECTION.*

By JAMES CLIFTON COLE, M. D.,

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Any paper in which malaria is discussed frequently attracts little more than passing interest before the average medical society. The principal explanation, I believe, is to be found in that we are dealing with one of the few subjects in medicine in which the laity is more or less familiar. Medical men feel that such a simple thing as malaria demands little consideration. Second only to "nervousness," malaria is credited with more symptoms than any other two common infections. Oftentimes the doctor or the layman is correct; more often, in all probability, he is incorrect in his diagnosis.

The diagnosis of malaria can be made positively in practically every case. It is true, in malarial hemoglobinuria it is difficult and often impossible to demonstrate the plasmodia; but with a limited skill—and every general practitioner can readily acquire it—malarial plasmodia can be demonstrated in every case in which there is sufficient infection to give rise to symptoms.

From an economic viewpoint, too, we are considering a subject of vital interest. Merely to state the fact that much time and money is lost as the result of malarial infection on plantations and in rural communities would not impress you; but to say that on one plantation in Arkansas there were twelve cases of malaria, each patient losing an average of five and one-half days, with an average loss of three days of time in nursing, making an average of eight and one-half days' loss for every case of malaria, giving a total loss of one hundred and two days during the crop

*Read before the Attakapas Medical Society, June 23, 1915, New Iberia, La.

season on the plantation,—this will serve to convince you of the economic importance of eliminating malaria. These figures are taken from recent observations made by Mr. J. K. Thibault, Jr., of the Bureau of Entomology of the United States Department of Agriculture.

Some Southern States are already making war upon malaria and mosquitos. Mississippi has incorporated, in the textbooks as studied by the children in the early grades, chapters on malaria. It should be taught in the public schools, preached from the pulpits, and heralded by the press. Perhaps in no other section in the South is the eradication of mosquitos and the elimination of malaria such a vital issue as in South Louisiana. Had you thought of the advisability, or even the possibility, of special legislation to govern the system of irrigation and drainage as employed in the rice fields and cane growing section of this and other States?

I appreciate the fact that I am addressing professional men who are familiar with conditions in the rice growing sections of South Louisiana, and would implore you, as the sanitary guardians of the public health, to become even more enthusiastic in the study and treatment of this old but important infection, malaria.

If you have been diagnosing your cases purely upon clinical signs and symptoms, a percentage has escaped; if you have been treating all suspicious cases with quinin, on general principles—those in which the clinical symptoms were not quite satisfactory for a diagnosis of malaria—you have mistreated a larger percentage.

The argument is often advanced that malaria, being such a simple condition, readily recognized and specifically treated, does not demand any great expenditure of time, skill or money. These things are partly true. The mortality is low; but the loss of time, the reduction in labor efficiency, and the curtailment of shop returns, are of far more serious moment than the low death rate.

Before considering the matter of carriers, let us remember that there are three important factors concerned, and necessary to the propagation and dissemination of the infection is a union of these factors. We will remember them as the triangle of M's—Malaria, Mosquito (anopheles) and Man (non-immune)—any one of which, alone, is inert and harmless; together they form a

triangle which will always prove a serious menace to public health and material prosperity.

The matter, then, of eliminating malaria, theoretically, is a simple one—dispense with any of the three angles. Destroy the mosquito or isolate the infection and allow man to return to his normal state and station. Rural and plantation life in once-infected areas will return to the "land of all the world supremely blest."

Carriers of malaria are infected man and mosquitos. Human carriers are active and potential; active applying to those with symptoms and in whose circulation the parasites are easily demonstrated; potential is applied to that class of cases which has been treated for malaria and is apparently cured, yet harboring the gametocyte or sexual form, in his deeper circulation. It is accepted that quinin does not destroy the gametocytes. The active carrier is easily reckoned with; isolation, by means of screening, renders him a source of danger no longer. The potential carrier, then, is the principal source whence the mosquito replenishes her stock and propagates her nefarious business. Since this latter carrier responds with difficulty, if at all, to specific treatment, some other and more successful method will have to be devised.

Very readily someone suggests the eradication of the carrying mosquito. This is the logical thing to do, but is it at all practicable? The anopheles is a very modest little animal, preferring the quiet of the country to the din and roar of cities. She lays her eggs in very secluded spots, and in every way instintively tries to preserve her species. About one month from the time the eggs are laid, they are hatched into mosquitos. Each female mosquito may lay eggs many times in a season and many hundred of eggs each time. These young mosquitos, after ten days, are capable of laying many hundred of eggs. So it can be appreciated that one pair of anopheles mosquitos, in the course of one season, can give rise to many millions of their kind.

It seems, then, a natural conclusion that until rural districts become suburbs of cities, until drainage canals become paved streets, marshes and swamps are converted into beautiful parks, and until all slow-moving streams and impounded waters are no longer ideal places for mosquito breeding, we are going to be

annoyed by mosquitos and constantly visited by the menace that follows in their wake.

Although we have already admitted the difficulty experienced in disinfecting the blood of potential carriers, I do think it is a less difficult task to disinfect such a blood than to eradicate mosquitos. If quinin is really a specific in the treatment of malaria —and this fact is generally accepted—there remains to be found some method or one proper method of administering it. No less an authority than Dr. C. C. Bass holds that during the winter months, when mosquitos are hibernating and are not sources of infection, if human carriers are properly and chronically treated before the spring season opens the majority will either have cured themselves or been cured. He recommends the use of quinin, not only in known carriers, but in all the members of an infected household, whom he considers carriers.

The salvation of malarial infected sections, the reclamation and cultivation of erstwhile marshes and swamps, the return to normal of labor efficiency, depend not upon the expenditure of large sums of money in drainage canals, etc. Scientific sanitation has done much and is destined to do much more, but mosquitos are here for many years to come, and man for always.

I believe we should direct our energies and attention toward man, particularly the so-called chronically infected fellow, or potential carrier.

If quinin is specific, there should be some method of administering it to get the maximum result in the minimum of time, and not have to treat a patient throughout the winter season, and still have him prove a carrier.

Malaria can be positively diagnosed.

Quinin is one of the few specifics we have in medicine; quinin cures malaria. There will perhaps some day be a better method, with reference both to quantity and mode of administration.

I do not advocate the discontinuance of war upon the anopheles; they are pests, aside from being carriers of disease. But it means the outlay of enormous sums of money and expenditure of time, all I believe to little avail.

Diagnose your cases of malaria. Disinfect the blood of every patient who might be a probable carrier. Isolate and treat known cases, and in a few more years malaria will be a rare infection, even in the presence of anopheles mosquitos.

A CONTRIBUTION TO THE STUDY OF HERNIAS OF THE OVARY, OF THE FALLOPIAN TUBE, AND OF THE OVARY AND FALLOPIAN TUBE.

By AIME PAUL HEINECK, M. D., Chicago, Ill.

Surgeon to the Jefferson Park Hospital, Rhodes Avenue Hospital, Etc.

Hernia is a widespread disease. In the female, the frequency of external hernias has been and is still underestimated. All the hernias herein considered were external hernias, that is, their outermost overlying saccular covering was skin and each, after reaching a certain stage of development, gave rise to a more or less visible, and palpable, external swelling in the ischiatic, obturator, ventral, femoral, inguinal or other region, depending upon the anatomical location of the hernia.

I wish to formulate some conclusions based upon quite an extensive study of the literature, and also upon my clinical experience, concerning that type of external hernias in which the hernial sac content is either the Fallopian tube, the ovary or the Fallopian tube and ovary, alone or in association with some other abdominal viscus or viscera.

In investigating the subject, I soon became convinced that deductions and conclusions, to be valuable, should be based solely upon the study of cases in which the hernial contents had been demonstrated at the operating, dissecting or post mortem table.

The escape of the uterine appendages from their normal situation may take place through any of the weak spots or openings of the lower abdominal or abdomino-pelvic cavities. A hernia originating either in the internal, or in the external inguinal fossa and escaping above Poupart's ligament, is an inguinal hernia; if it escapes beneath the same ligament, and emerges through the crural canal and the saphenous opening, it is a femoral hernia; if through the obturator canal, an obturator hernia; if along the course of the gluteal or sciatic nerves and vessels, emerging almost always above, very infrequently below the pyriformis muscle, very rarely through the lesser sacro-sciatic foramen, a gluteal hernia; if through an operative scar in the abdominal wall, a post-operative hernia.

Though sanctioned by long usage, the classifying of hernias into congenital and acquired is, at times, misleading.

Some hernias are congenital in the truest sense of the word; they are complete at birth, hernial contents being then present. In most of the so-called congenital hernias, the sac only is existent at birth; in an acquired hernia, the sac is always of post-natal development, and in all but hernias "par glissement" is entirely derived from the parietal peritoneum. Congenital hernial sacs result from the want of closure of peritoneal processes, such as the processus vaginalis peritonei in the male, the canal of Nuck in the female, etc., normally present in the fetus. Congenital hernias may appear at any period of life.

Orifices for the transmission of vessels and ducts are normally present in the muscular and aponeurotic layers of the abdominal walls. An acquired hernia is formed by the gradual or sudden escape through these orifices, pathologically widened, of viscera normally contained within the abdominal cavity; the viscera in their passage through and beyond the abdominal wall create paths of escape for themselves by bulging and pushing forward the parietal peritoneum.

CONCLUSIONS.

1. The Fallopian tube, the ovary, or the tube and ovary, in part or in their entirety, may be herniated. Degree may vary from a complete descent into a hernial sac, of the tube, ovary, or tube and ovary, to a condition where herniated viscus or viscera lie just without the abdominal ring.

2. The herniated tube, ovary, or tube and ovary may be the sole content of the hernial sac, or there may be present as associated hernial contents one, two or more of the following structures or organs: Meckel's diverticulum, appendix vermiformis, omentum, urinary bladder, small or large intestine, rudimentary or fully developed uterus.

3. Tubal, ovarian, and tubo-ovarian hernias are congenital or acquired, unilateral or bilateral; exist alone or in association with one or more other hernias of the same or of dissimilar anatomical types, of the same or of dissimilar clinical characteristics.

4. These hernias, in a small proportion of cases, co-exist with malformations, underdevelopment or absence of other internal or of some external genitalia.

5. In individuals having a herniated tube, a herniated ovary,

or a herniated tube and ovary, pathological states of other internal genitalia or of some external genitalia may be present: Vaginitis, ovarian cystoma, uterine fibroid, uterine prolapse and other uterine displacements, etc.

6. These hernias may coexist with pathological states of organs other than the internal or external genitalia: Chronic hydrocephalus, multiple stenosis of intestines, hydronephrosis, etc.; these coexisting pathological states not having any relation of cause or effect to the hernial infirmity.

7. Congenital or acquired hernias, of the tube, ovary, or tube and ovary, may develop at any period of life. These hernias have been observed in nulliparæ, in primiparæ, and in multiparæ. No age is exempt. No race is immune. As hernias by their complications shorten life duration, the number of hernia-bearing individuals that reach an advanced age is small as compared to that of the non-herniated.

8. According to their anatomical site, hernias of the uterine appendages are designated as post-operative, ventral, gluteal, sciatic or ischiatic, obturator, femoral and inguinal.

9. Clinically, these hernias are reducible, irreducible, non-inflamed, inflamed, strangulated, or their pedicle may be the seat of torsion.

10. Torsion[4] of the pedicle of a herniated ovary or of a hernated tube and ovary, an accident peculiar to, and not infrequent in, hernias of the uterine appendages, gives the same clinical symptoms and determines the same anatomical changes as are observed in the strangulated hernias of the uterine appendages.

11. We were able to collect eight times as many hernias of the inguinal variety as of all the other anatomical varieties put together.

12. Tubal, ovarian, and tubo-ovarian inguinal hernias are recent, old, or recurrent; are direct, interstitial[4] or intra-parietal, indirect or oblique. If indirect or oblique, they are either complete or incomplete. A few sliding hernias are on record.

13. All the bilateral tubal, ovarian, or tubo-ovarian hernias recorded in the medical literature of the last twenty years are of the inguinal variety. In bilateral hernias, both hernias may or may not show the same degree of development; they may have appeared simultaneously or one may have appeared a shorter or longer time before the other. They may show

similar or dissimilar clinical characteristics. When bilateral, one hernia may be irreducible and the other reducible.

14. All the hernias in which the complication "torsion of the pedicle" occurred were irreducible congenital inguinal hernias.

15. All the femoral tubal, ovarian or tubo-ovarian hernias recorded in the medical literature of the last twenty years were of the acquired type and appeared in advanced adult life. "Femoral hernia is essentially a hernia of adult life."

16. Hernias of the uterine appendages, in the absence of anomalies of the non-herniated internal genitalia or of the external genitalia, do not, if the herniated adnexa be of normal development, free from disease and reducible prevent conception, interfere with gestation, nor unfavorably influence parturition. Pregnancy can occur previous to, during, and subsequent to, the existence of hernias of this nature.

17. The etiology of hernias of the uterine appendages is that of hernia in general. As main factors should be cited:

1. All conditions associated with increased mobility of the uterine appendages:

a. Lengthening of the broad ligaments consecutive to repeated pregnancies.

b. Pathological relaxation of the ligaments due to puerperal subinvolution.

c. Abnormal length of the broad, ovarian, and infundibulopelvic ligaments.

2. All conditions that tend to increase the intra-abdominal pressure:

a. Sudden increase of the intra-abdominal pressure leads to hernia formation by overcoming the resistance offered by one or another of the weak points of the abdominal wall. Sudden increase of the intra-abdominal pressure may lead to the irruption of a tube, ovary, or tube and ovary in the sac of an old enterocele.

b. Occupations necessitating muscular efforts, associated with increased intra-abdominal tension, as the lifting or pushing of heavy weights, etc.

c. Physiological or pathological states which distend the abdominal cavity, which stretch the abdominal parietes, and widen the orifices normally present in the muscular and aponeurotic

layers of the abdominal wall. Enteroptosis, obesity, abdominal tumors, ascites, pregnancy, etc., can be regarded as predisposing and exciting causes to hernia production.

3. All conditions which weaken the abdominal wall: A hernia can occur wherever the parietal peritoneum is not sufficiently supported by the transversalis fascia and the other structures of the abdominal wall.

a. Acute or chronic disease debilitating the organism, especially such as cause great emaciation.

b. Obesity weakens the abdominal wall and increases the intra-abdominal pressure. The fat present in the abdominal wall, in the omental, mesenteric, and other peritoneal folds explains why obesity plays such a rôle in hernia development.

c. Traumatism. Most often the traumatism does not cause the hernia, but only reveals its existence. Among traumatisms must be mentioned abdominal operations and their sequelæ. Pathologic adhesions of viscera or omentum to the anterior parietal peritoneal wall near a hernial opening may act as a predisposing cause.

d. Enteroceles, epiploceles, and entero-epiploceles.

e. Feeble development or atrophy of the aponeurosis of the transversalis muscle, and of the conjoined tendon. This factor is an important one in direct inguinal hernia.

18. The herniated organ or organs may be free from all degenerative changes.[5]

19. The herniated organ or organs may be bound to the sac-wall or to each other; may be the seat of congestion, gangrene, hemorrhage, inflammation, suppuration, tuberculosis (primary or secondary), cystic and neoplastic disease (benign or malignant).

20. The herniated organ may be the seat of gestation.

21. The hernial sac and the herniated adnexa may be the seat of an inflammation, suppurative or other in character, which, owing to progression by continuity of surface, has extended upward from the vagina, presenting the following anatomical picture: Vaginitis, endocervicitis, endometritis, salpingitis or pyosalpinx, ovaritis and saccular peritonitis.

22. The hernial sac and the herniated contents may be the seat of an inflammation, suppurative or other in character, which, originating in the vagina or in the uterus, has reached the tube

and ovary by way of the parametrial and parasalpingeal connective tissue.

23. Pathological processes originating in the hernial contents may, owing to extension by contiguity of tissue, involve the sac and its overlying tissues.

24. Pathological processes, primarily involving the sac of the overlying tissues, can spread to the hernial contents.

25. The hernial sac and the herniated tube, ovary or tube and ovary can become the seat of an inflammatory or other pathological process originating in the associated hernial contents, epiploitis, appendicitis, gangrenous gut, etc., infection spreading by contiguity of surfaces.

26. The herniated tube, ovary, or tube and ovary, and the associated hernial contents may be free of disease or the uterine adnexa may be normal and pathological changes be present in the associated hernial contents: appendicitis, gangrenous gut, epiploitis, etc.

27. The associated hernial contents may be normal and the herniated uterine adnexa be the seat of morbid changes.

28. It is at times difficult, at times impossible, to determine whether the anatomical changes present in the herniated organ or organs, developed previous to or subsequent to the displacement of the tube, ovary, or tube and ovary into the hernial sac.

29. Truss treatment for hernias of the uterine appendages is not curative, is often productive of discomfort, and not infrequently interferes with the nutrition and development of the herniated tube or ovary.

30. Women who suffer from any form of hernia should be carefully watched before, during and after their confinement, so as to prevent or rather minimize any undue strain upon weak regions of the abdominal wall. These women, at the close of lactation or towards the end of the first year following their confinement, should, in the absence of contra-indications, be subjected to an operation for radical cure of the hernia.

31. After the second year of life, spontaneous cure of hernias of the uterine adnexa is rare and can occur only if the hernial contents are easily reduced and easily kept reduced.

32. In the female, all hernias irrespective of anatomical site, clinical condition, or of nature of contents should, in the absence

of a constitutional state contra-indicating operations of election, be subjected to an operation for radical cure.

33. We advise that all hernias of the uterine appendages,[5] whatever be the age of the patient, be, irrespective of anatomical site or size, subjected to an operation for radical cure:

a. If the hernia be irreducible.

b. If the hernia be strangulated.

c. If the pedicle of the herniated organ or organs be the seat of torsion.[6]

After the age of two years:

d. If the hernia be bilateral.

e. If other hernias be co-existent.

f. When hernia cannot be painlessly, completely and permanently kept reduced.

g. If organs other than the uterine appendages be also present in the same hernial sac.

h. If the wearing of a hernial truss causes pain or aggravates the symptoms.

i. If the patient has to be subjected to ether, chloroform or other general surgical anesthesia for the performance of an operation of election, double advantage can be taken of this anesthesia, and an operation for the radical cure of the hernia performed.

j. If patient is exposed to pregnancy.

34. Clinical conditions so closely simulating hernias of the uterine appendages that a positive diagnosis without operation appears impossible, should be subjected to operative treatment. Only benefit can be derived from adherence to this rule. A diagnosis is established, and a cure is effected.

35. In hernias of the uterine appendages, as in all other hernias, the ideal time for operation is previous to the development of degenerative or other pathological states in the herniated organ or organs, and previous to the occurrence of any of the various complications incident to hernias. Early operations give the most satisfactory results.

36. The mortality of operations for the radical cure of hernias, if performed at an opportune time and by a rapid operator, competently assisted, is practically nil.

37. To be effective, operations for radical cure of hernias must well fulfill two essentials: The suppression of the sac and the strengthening of the wall through which the hernia has

escaped. In all herniotomies, the sac should be incised and the hernial contents examined. In the female, the inguinal rings are comparatively small. They can, without inconvenience to the patient, be closed.

38. Important operative points:

a. Always wear and have the assistants wear rubber gloves.

b. All ligatures and irremovable buried sutures should be of absorbable material.

c. In inguinal hernias always divide the aponeurosis of the external oblique muscle to an extent sufficient to give a good exposure of the inguinal canal, and of its contents. In the female, the inguinal canal in its normal state and after an inguinal hernia operation, in its restored state, should, outside of a few arterioles and nerve filaments, contain nothing but the round ligament, a structure much smaller than the spermatic cord. This round ligament comes from the muscular structure of the uterus; it finally becomes lost in the labium majus. In a hernia operation, the round ligament, if not the seat of disease, should never be sacrificed.

d. Always make a high and careful dissection of the hernial sac from the surrounding tissues, and especially from the round ligament to which it is often quite intimately adherent.

e. Always open the sac and determine by direct inspection and palpation the nature and state of the hernial contents.

f. After reduction or ablation of the hernial contents the sac is to be transfixed and ligated as high as possible. Sac is then removed flush with the peritoneal cavity. This high and thorough removal of the sac is most important.

g. Never sacrifice the round ligament; it is harmful to the statics of the uterus. Never transplant the round ligament; it is unnecessary. No drainage. After operation, no truss should be worn; a truss does not support the scar; it weakens it.

39. The normal herniated tube or ovary should never be sacrificed. These organs have an important rôle and in the absence of marked structural impairment should be returned to the abdominal cavity.

40. These organs when herniated should be removed, if they be the seat of:

a. Unavoidable or actual gangrene.

b. Benign neoplastic disease.

c. Malignant neoplastic disease.

d. Voluminous cyst formation (unilocular or multilocular).

e. Malformation or incomplete development (Hydrosalpinx).

f. Suppurative inflammation.

g. Hematoma or interstitial ovarian hemorrhage.

h. Seat of tubal gestation, previous or subsequent to rupture of fœtal sac.

i. Tuberculosis limited to or extending beyond the herniated organ.

j. Distortion beyond recognition.

k. Such pathological changes as prevent function.

41. Until we are better informed as to the frequency and nature of true and false hermaphroditism, removed herniated uterine adnexa not having a distinctive structure should be subjected to a microscopical examination. This will avoid mistaking testicular for ovarian tissue, and vice versa.

42. In the treatment of strangulated sciatic or gluteal, obturator and femoral hernias of the uterine appendages, in which the hernial sac also contains gangrenous gut, a double operation is almost always indicated: a laparotomy for the repair of the intestinal lesions, and a herniotomy for the radical cure of the hernia.

43. The herniated tube, ovary or tube and ovary can be removed through the usual herniotomy incisions. The operative steps for the removal of these herniated organs correspond, short of a laparotomy, to the technic ordinarily ued in salpingectomy, ovariectomy, and oophorectomy.

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CERVICAL MYOMA; REPORT OF AN UNUSUAL CASE.*

By M. A. SHLENKER, M. D., New Orleans, La.

In a previous communication before this society on this subject, I referred to the fact that cervical myoma occurred much more frequently than we are led to believe and offers innumerable difficulties in its removal.

Reviewing the literature on this subject, it is about agreed that cervical myomata occur in about 5% of all myomata, that they offer great difficulties, as a rule, in their removal, especially when located deep in the pelvic cavity, where their removal menaces the ureters and rectum. They are etiologic factors in the production of dystocia during labor, their presence producing an obstruction to the delivery of the fetus. These tumors grow from any part of the cervix to and a large percentage of the cases produce, among other symptoms, dysmenorrhea, metrorrhagia and menorrhagia. Smead (*Amer. Journal of Obs.* 1911) states that pendunculated cervical unions are rare and that tumors located in the cervical wall follow in their growth in the direction of least resistance. Those growing intracervically uniformly expand the cervix, while those growing on the lateral, anterior, or posterior aspect elongate without expanding on the cervical canal.

Sutton (*Lancet,* 1904) says in two-thirds of the cases the tumor is usually solitary. They may attain considerable size; the largest one being recorded has dimensions 30 cm. in length, 12.5 in breadth. This tumor is on exhibition in the museum of the Royal College of Surgeons, Edinburgh.

Cases have been reported where the cervical tumors of the anterior wall have grown so as to have forced the bladder from within the pelvic cavity, producing thereby innumerable vesical symptoms. Those situated on the posterior wall produce pressure symptoms on the rectum and interfere with the free evacuation of the lower bowel.

According to Rabinowitz, in 114 collected cases of cervical myoma the distribution of the tumor was as follows: In 45 cases the myoma was found on the anterior lip of the cervix,

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ILLUSTRATING DR. SHLENKER'S ARTICLE.

and in 55 cases it was located on the posterior lip, while the lateral implantation was observed in only 14 cases.

A little before midnight March 14, 1915, I was notified that an emergency case had been admitted to my service at the Charity Hospital, having been brought in by the ambulance. The patient was bleeding profusely from the vagina, with a clinical diagnosis of inversion of the uterus. The intern reported that she was suffering badly from shock occasioned by the loss of blood, and that immediate action was necessary.

Upon my arrival at the hospital I ordered that the patient be brought to the aphitheater and prepared for an anesthetic and whatever operative procedures that might be required. Before proceeding with the anesthesia I questioned the patient in reference to her condition, and her replies were somewhat unintelligent and incoherent. Her general appearance was that of one who was badly shocked, her features pinched, her face pale, her pulse ranging from 150 to 160 and thready, and the extremities cold and clammy.

Upon examination of her genital organs I observed protuding from the vaginal orifice a mass which had all the appearance of an inverted uterus, and which bled readily when manipulated. I inspected the mass, searching same for the tubal orifices, which I at first thought I observed, a probe entering readily on one side of the supposed tubal opening. Upon further investigation, examining the patient digitally, I felt the cervix uteri, and within the vagina a mass with the contour of that of the body of the uterus. With vaginal retractors I could now readily observe the cervix uteri acutely flexed to the right, and growing to the left side of the cervix and attached to it by a broad base this tumor mass—which was heretofore considered the uterus. With a uterine probe I entered the os uteri without any difficulty, thereby convincing myself that we were not dealing with an inverted uterus, but that of a cervical myoma, which, according to my interpretation had ruptured spontaneously from the left side of the cervical wall, as shown by the sketch herewith presented. I excised this tumor-mass, which was deeply implanted in the cervix, and closed up the cervical wall with interrupted chromic catgut sutures, and at the same time curetted the uterus and packed same with a strip of iodoform gauze.

The patient's recovery was uneventful, and I beg to submit to

you herewith a photograph of the specimen with a pathological report of Doctor H. W. Wade:

The specimen consists of a soft, pliant mass roughly the size of the fist, measuring 9.5x11x5.5 cm. The surface is irregular in outline, and at two points shows distinct lobulation. This is due to the irregular interlacing of strands and masses of a fibrous tissue which shows dark red through a thin pale connective tissue layer. This capsular layer is seen over most of the surface. It is absent, however, over one area, which shows fragmentation of the tumor surface.

On section the entire mass is seen to be quite uniform in composition. It is coarsely fibrous, tough, dark red, and on tearing tends to separate into coarse strands and fibres. As a whole, the tumor is very vascular, and the entire tissue is infiltrated with blood. Areas are seen which have the appearance of solid blood-clot, but on pressure these prove to be firm and resistant.

Microscopic sections show the tumor to be a typical leiomyoma, which contains a large amount of connective tissue in certain parts. One section shows a normal condition with respect to the muscle and connective tissue, and no increase of vascular channels. Other sections, however, are usually vascular and in areas show marked diffuse hemorrhagic infiltration, edema and in places accumulation of polymorphonuclear leucocytes. Here the tumor proper shows varying amounts of hyaline degeneration of the connective tissue.

Diagnosis: Fibro-leiomyoma (Fibroid), in the hyalin degeneration. Acute inflammation (infiltrative), hemorrhage and edema.

The history of the patient is as follows:

Ruth M. admitted to service No. 2, ward 53, white, age 53, and a native of Louisiana. Family and previous history has no clinical bearing on this condition. Menstrual history. Periods first made their appearance at 13, and the 28 day type; she has always been more or less regular, but complained that the quantity has always been more or less profuse, usually lasting seven days or more.

The past three months the periods have been more irregular, lasting much longer and more painful than usual, and that the last term persisted throughout the entire month, during which time she passed many large clots. She has been married fourteen years and has had three full term children and two miscarriages, both of the latter occurring three years ago. Regarding her present illness she relates

the following. Three days prior to her admission to the hospital she was taken suddenly ill with excruciating pains in the left iliac region which caused her to faint, remaining unconscious for a short time. These pains persisted after she was placed in the bed, growing constantly worse, and were as she expressed it "like labor pains." A midwife was sent for, who on her arrival informed her that she was about to give birth to a child. The pains continued with short interval of rest for several days, and she observed while sitting on the toilet a large mass was protruding from her vagina, which was the size of a fist. Immediately after this mass was observed the ambulance was sent for and the patient brought to the hospital.

After the removal of this tumor I made a subsequent examination of the patient and found the uterus enlarged and irregular, indicating the possibility of other tumors being present. I informed the patient of the possible presence of other growths and urged permission to do a more radical operation, but my overtures were without avail. She returned home apparently well. Some time later I learned from her family physician that she had had irregular uterine bleedings since her return home, which in a way confirms my suspicion of other uterine growths being present.

This case which I have reported is quite unique, first, as to the location of the tumor being situated in the left half of the cervical wall near the junction of the vaginal implantation of the cervix; secondly, by its connection with the cervix through a broad base; and thirdly, the history of its spontaneous expulsion; and lastly, the confusion of this tumor with that of an inverted uterus.

CLINICAL REPORTS OF CASES PRESENTING FEATURES OF UNUSUAL SURGICAL INTEREST.*

(*Concluded from October* JOURNAL.)

By RUDOLPH MATAS, M. D., New Orleans.

Observation 8. Malignant disease of the left testis; orchidectomy with complete removal of the spermatic cord up to the internal inguinal ring, followed twenty-seven days after the castration by Chavassa's operation for the removal of metastatic retroperitoneal glands in the preaortic and pararenal areas.

Mr. H. M., age twenty-eight years, merchant, native and resi-

*Extracts from a "Stereopticon Clinic," illustrated by lantern slides and presented by invitation at the 48th Annual Meeting of the Mississippi Medical Association, Hattiesburg, Miss., May 11-13, 1915.

dent of Demopolis, Alabama, was admitted to the Touro Infirmary December 19, 1914. Married six years, no offspring; good hereditary antecedents; a robust, muscular, vigorous and well-proportioned young man, of temperate habits. He has been well all his life. Had gonorrhœa at the age of fourteen years; a slight attack which lasted a short time. Had another attack in 1904 from which he apparently recovered completely. He has no knowledge of syphilitic infection, and the Wassermann and Tchernogubow tests are both negative.

History of Present Illness: The patient was in perfect health up to last April (1914) when, in the act of copulation, he experienced severe pain in the left testicle, which disturbed him considerably at the time, but soon passed off and he thought no more of it. Three months elapsed when (last July) he began to suffer slight pain in the left testicle, caused, as he thought, by the striking of his scrotum against the thigh. The testicle was enlarged at the time, but not as much as at present. He does not know just when the swelling started. The pain never was acute and he now complains of only a dull pain in the groin, due to the traction of the enlarged testis.

The testicle is sore and sensitive to pressure. Dr. Bailey, his family physician, whom he consulted in August, last, and who is now with the patient, is not able to tell whether the epididymis or body of the testicle was first involved. He believes that both were enlarged at the time. The testicle has gradually grown larger and harder.

He has taken KI. and Hg. and other medication, but the testicle has steadily grown worse (larger). If the initial pain which he felt in April is regarded as the beginning of the disease, this has lasted nine months up to the date of admission into the Infirmary.

Physical examination on December 18, 1914, by Dr. Matas: Patient is in good physical condition. Weight, about 150 pounds; height, 5 feet 11½ inches.

On examination the scrotum is found enlarged and filled with a globular tumor which has incorporated the left testicle in its mass. The affected left testicle is about eight times larger than the right. The right testis is normal. The testicular mass is rather pyriform than globular, with the narrow part corresponding to the epididymis and the larger part to the tes-

ticle proper. The testis and epididymis are fused together in an indistinguishable mass. The cord is thick and hard and can be traced to the internal inguinal ring.

The testis is sore and tender to the touch, indurated, comparatively smooth and even, and without notable nodes or projections. The hardness is almost stone-like in character, except at the lower pole, where it is softer and semi-fluctuant. There is no edema of the scrotum or adhesions of the skin to the mass, but the weight of the enlarged testicle causes the scrotum to hang very low, even with the junction of the upper and the middle third of the thigh.

The abdomen along the aortic tracts and in the lumbar region reveals no nodules or areas of hardness on palpation.

Rectal examination shows a moderately enlarged prostate with the left vesicle harder and a little larger than the right. No nodules or distinct masses are perceptible. The right vesicle is normal. No secretion was obtained by a systematic massage of the prostate or stripping of the vesicle and deep urethra. The inguinal glands are alike on both sides; not very palpable.

The first glass of urine is cloudy and the second more so. It shows a little pus, a trace of albumin, and total absence of spermatozoa. Repeated examinations for tubercle bacilli by the usual methods and by antiformin, are always negative. The Wassermann, as previously stated, is also negative. These examinations appear to eliminate a syphilitic, a tuberculous or a purely gonoccocal disease, and it was concluded that the enlargement of the testicle was caused by a malignant neoplasm. The enlarged vesicle was probably the result of an old gonorrheal vesiculitis. An exploratory incision into the testicle was decided upon, which should be followed by immediate castration if the gross appearance confirmed the diagnosis.

The operation was performed under ether, on December 19, 1914. An incision five inches long was made, extending from the upper level of the scrotum up to the internal inguinal ring. The testicle was delivered easily and exteriorized out of the incision from one pole to the other, showing that the neoplasm was of an infiltrating variety, granulomatous with broken-down centers; and some hard cartilaginous nodules ill-defined, and rather diffused with the exception of the lower pole, in which normal testicular tissue was recognizable. The testicle showed

that the bulk of the mass formed an irregularly-defined tumor larger than a big pecan nut, occupying chiefly the upper pole of the organ, and was soft, degenerating into the center. Beyond the testicular tumor, the body of the testicle was comparatively normal on section. There was quite a zone of edema in the cortex of the gland. The cord was edematous. In view of these unmistakable signs of malignant disease, it was decided to castrate at once, and this was done with as much thoroughness as possible.

The testis and cord were excised as high up as possible, the vas deferens being followed beyond the internal ring into the subperitoneal tissue, close to the bladder, where it became thin and normal.

The spermatic vessels were also severed and ligated beyond the internal ring.

The wound healed promptly from the operation, and the patient was discharged from the Infirmary on December 23, 1914, with the instruction to return within two or three weeks, when an attempt at a radical extirpation was to be made, in order to excise the primary lymph zone of the testis and any metasttatic deposits that might have developed at the usual seat of metastasis, at the junction of the spermatic with the renal veins (on the left side) in the retroperitoneal space.

The microscopic examination of the testicle was conducted in the pathologic laboratory by Dr. Lanford, who reported the diagnosis of mixed tumor or terato-blastoma of the testicle with adeno-carcinoma as the predominating type. There was an extension upwards into the vas deferens.

The report of the microscopic findings made me still more insistent upon the patient returning for a secondary and more extensive operation, with a view of following up the secondary lymphatic route of metastatic infection.

In accordance with my instructions, the patient returned to the Infirmary on January 13, 1915, and was operated on the 15th, or twenty-seven days after the castration, the operation being performed under gas-ether anesthesia, administered by Dr. Caine.

The operation, January 15, 1915, was carried out precisely on Chevassu's lines, as shown in the accompanying drawing. The continuous incision carried along Poupart's ligament to the

Obs. 3. Fig. 1.—Photo-micrograph of a section of the tumor of the testis removed from Mr. M. Section shows a mixed tumor (terato-blastoma) the matrix is largely of sarcomatous type with many islands of embryonal epithelial cells arranged in glandular form (adeno-carcinoma.)

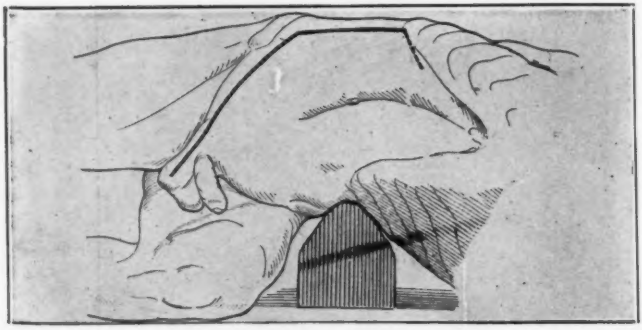
A.—Remains of seminiferous tubules.

B.—Islands or nests of epithelial cells (adeno-carcinoma.)

C.—Sarcomatous-matrix (round cell type.) From sections prepared by Prof. Lanford (Laboratory of Surgical Pathology, Tulane University.)

(Note) The metastatic pararenal and aortic lymph nodes showed the same appearances with additional large islands of embryonal cartilage.

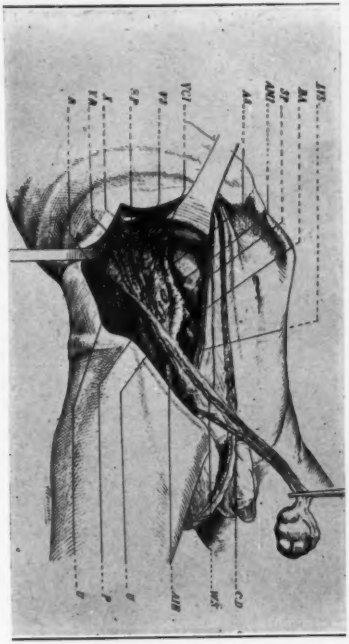
ARTICLE OF DR. MATAS.



Obs. 3.—(CASE OF MR. M.)—MIXED TUMOR (TERATO-BLASTOMA OF THE TESTICLE.)

Fig. 2. (From M. Chevassu, Revue de Chirurgie, Paris, May, 1910) shows external lines of incision for the extirpation of the right testicle with cord, spermatic vessels and tributary lymph tracts. Also the position of the patient to obtain the largest ilio-lumbar exposure. In the case of Mr. M. the **left** testis was involved and the lines of incision should be reversed.

ARTICLE OF DR. MATAS.



Obs. 3. Fig. 3.—From Chevassu (loc. cit.), showing the retraction of the abdominal wall and reflected peritoneum with the intestinal mass to the inner side with exposure of lumbar lymph nodes.*

*The testis is isolated and lifted with the retroperitoneal connective tissue together with the spermatic artery and veins traced up to the renal veins and aorta. The external and common iliacs are cleared, exposing the ureter and aortic bifurcation where a careful search is made for lymph nodes. The aorta is traced up and cleared of all glands anteriorly and laterally. In disease of the right testis the same incision is adopted but the vena cava is exposed and cleared. In the case of Mr. M. the left testis was involved and the attack was directed chiefly on the aortic side. The spermatic artery and veins are ligated and cut off at their origin. It is best to do a block dissection from the inguinal canal up, removing the glands which are usually easily recognized with the retroperitoneal connective tissue. It should be remembered that the most miportant terminal lymph nodes of the testicular lymph system are grouped about the terminus of the spermatic into the renal veins (4 or 5 glands). It was here that we found the largest infected mass in Mr. M.'s case. On the left side, they lie between the renal pelvis and the aorta. On the right side, on the vena cava itself or on its inner surface between the cava and aorta. Other groups of secondary importance are those which lie at the aortic or caval bifurcation. Others lie in isolated nodes on the aorta or cava or, next to these vessels, from the bifurcation to the origin of the renal vessels.

Another solitary gland is also often found infected at the crossing of the ureter over the external iliac vein (Zeissel and Horowitz, Most and Cuneo.)

Another chain of small nodes is found along the inguinal course of the spermatic tract (Villar and Salabert; Cuneo) hence the importance of making a most thorough extirpation of the cord including the connective tissue sheath of the spermatic vessels—from the scrotum up.

ARTICLE OF DR. MATAS.

anterior superior spine, then perpendicularly up to the left costal arch, and forward up to the cartilage of the tenth rib. All the structures were divided down to the peritoneum. Beginning from below, the epigastric vessels were ligated close to their origin in the iliacs. The spermatic vessels were also recognized; unusually small in size, but unmistakable, and traced upward toward the kidney. The ureter, likewise, was recognized and followed up to the kidney. The peritoneum was then peeled back beyond the brim of the pelvis. The external iliac vessels were exposed and then the origin of the internal iliac at its bifurcation, where a careful search for glands was made; but none were found. The hollow of sacrum was now exposed and a search for glands made at the bifurcation of aorta, but, again, none were found. The peritoneum was reflected further up toward length of aorta, when a dark grayish mass was revealed just within the inner border and below the lower angle of the lower pole of the left kidney. This mass proved to be a very adherent neoplasm which was tensely filled with soft grumous, brain-like matter. It ruptured and allowed the semi-solid contents to escape before it could be shelled out. The mass itself was about the size and consistence of a large oyster and was evidently a lymphatic gland undergoing neoplastic degeneration and softening. This mass was resting on the psoas muscle and left crus of the diaphragm, and was crossed over by the pelvis and ureter of the left kidney. Three other glands, each about the size of a large pea, which were imbedded in prevertebral and pararenal fat, and lying in contact with the left border of the abdominal aorta below, and on the renal artery, were removed. The kidney was isolated, the ureter traced to the pelvis and the left spermatic vesssels followed up to the left renal vein and abdominal aorta. These were ligated close to their termination and removed, the ureter being very carefully protected throughout the operation.

A great deal of oozing, probably venous in character, occurred in the extreme upper end in the vertebro-costal groove, which seemed to be due to the attachment of vessels (lumbar veins) to the neoplastic and adherent glands. The control of this bleeding by forceps and packs was the most tedious and annoying part of the operation. Several bleeding points were controlled by packs of gauze. The kidney and its capsule of fat

were lifted up with the peritoneum. The reflection of this membrane progressed, inwards, from the abdominal line of incision to the aorta.

The rest of the operation was not difficult, except that, in spite of the great length of the incision, it was found hard to denude the upper aorta so as to make a thoroughly clean dissection at and above the level of the renal arteries.

The abdominal wall was then sutured with a triple layer of chromic catgut, for the muscles and aponeurosis, and the skin suture was reinforced by numerous silkworm sutures. The gauze packs in the retroperitoneum were removed and a drain was left in the retroperitoneal cavity, which escaped externally through a separate incision in the ilio-lumbar space in Pettit's triangle. Before closing the incision at Poupart's ligament a group of enlarged inguinal glands was also removed.

During the operation, the patient was lifted in the kidney position with the Koenig attachment, and was kept in the Trendelenburg position, being turned to his right side so as to widen the left ilio-costal space as much as possible.

From the beginning to the end of the operation, which lasted from 11:28 a. m. until 1:43 p. m. hypodermoclysis with a three per cent glucose solution in the mammary regions was continuously kept up. The pulse gradually rose from 112, on taking the anesthetic, to 150, at the close; but it was always of good volume. When the patient was returned to his bed, the pulse rapidly fell to 110 and the next day was 98. He did very well and his condition gave us no anxiety at any time; but his convalescence was retarded by a suppuration of the lower angle of the wound, caused by an infection of the retroperitoneal connective tissue in the iliac fossa. He was able to get about and was healed when discharged on February 12, or twenty-eight days after the operation. He returned to his home in Alabama, and for two weeks did well, when he began to have an evening rise of temperature (up to 101°) which continued until he came for the third time to the Infirmary, on March 12, one month after his last discharge. The temperature was accounted for by a deep lumbar abscess, which was drained by a puncture of the inguinal portion of the scar, with great relief of symptoms. Fearing that he might have other complications,

the patient remained in the Infirmary until May 3, when he was discharged for the last time.

At the time of his departure, it was evident that the patient had developed a large pleuro-pulmonary metastasis. He coughed and had constant intercostal pains. Distinct pleural friction murmurs were heard, with areas of tubular breathing and subcrepitant rales in both lungs, especially the right. Signs of a moderate effusion soon followed, which we found to be of a sero-sanguinolent character. The centrifuged fluid showed a great mass of epithelial cells and others of an embryonal neoplastic character. A radiograph of the chest, taken just before his departure, showed plainly that there were several large tumor masses apparently attached to the posterior thoracic wall, pleura and mediastinum. The patient himself believed that he had been attacked by tuberculosis, so closely did his symptoms suggest to the unprofessional observer a typical galloping consumption.

He died at his home in a state of marasmus and exhaustion, on May 30, one month after thoracic metastasis had been recognized.

COMMENTARIES:

To summarize the essential facts of this case we find: first, that a mixed tumor of the testis developed rapidly and attained unmistakable characteristics in the course of nine months, dating from its first appearance.

Castration, including the spermatic cord beyond the internal ring, was performed on December 19, 1914, nine months after the first appearance of the disease. On July 15, or twenty-seven days after this thorough castration, Chevassu's operation for the removal of the primary lymph zone or pre-aortic and perirenal metastases was performed.

This operation demonstrated that very extensive glandular metastases had already occurred. All the visible glands were removed; the pathologist, Dr. Lanford, reporting an identical histological structure, *i. e.*, mixed tumor, in the metastases as he had found in the testis.

The patient recovered from this very extensive and serious operation. On May 1, or scarcely four months after this operation, it became quite evident and demonstrable that many large

metastatic deposits had occurred in the posterior mediastinum, pleura and lung. On May 30, the patient died, in consequence of the thoracic metastases.

Thus death occurred about thirteen months after the first signs of the disease had appeared in the testis, six months after castration; and five months after the attempt at radical extirpation or Chevassu's operation.

I have gone into some detail in reporting this, in many respects, remarkable and instructive case, not only because it is a contribution to a comparatively new field of surgery, which is still on debatable ground, but because it offers many suggestive features of imporatnce to the general practitioner as well as to the surgical specialist.

It is not my intention to engage in a general discussion of the subject of the proper treatment of malignant disease of the testicle. Such a discussion would be out of place in presenting a mere clinical report of a group of individual cases; but in projecting the slides, which I am showing on the screen,* I feel justified in directing your attention to a few important points.

In addition to the intrinsic interest which attaches to the subject, I may say, in passing, that this is one of the very few instances, if not the first in this country, in which a systematic effort has been made to extirpate the metastatic deposits of the primary lymph zone of infection in testicular cancer, following the lines laid down by that most thorough and conscientious student of the subject, Maurice Chevassu.

It is true that John B. Roberts, of Philadelphia, was the first to undertake, in 1901, the removal of the lumbar lymph nodes in a case in which clinically they were not involved. "He elected a median abdominal incision, opened the peritoneum and encountered insurmountable difficulties, and his patient died in a few days from peritoniitis." As told by Dr. Frank Hinman, of Baltimore, in a most recent and comprehensive study of the subject (*A. M. A.*, December 5, 1914, Vol. 63), Robert's misfortune has seemed to discourage all other American surgeons, as none has since undertaken the removal of the gland area. According to Hinman's latest study, the radical attempt at extirpation of

*Only a few of the many slides exhibited at the meeting showing the histological peculiarities of the mixed tumors of the testis and the steps of the so-called radical operation are reproduced in the illustrations which accompany this paper.

testicular cancer on the lines laid down by Chevassu in 1906, has been performed forty-one times in France, four times in England and once in Italy. The systematic operation devised by Chevassu is based on the universally accepted principle in the treatment of malignant disease, which is, to excise widely the local growth, to make a clean dissection of all the lymphatics which drain the area, and to remove the primary chain into which these lymphatic vessels empty. This is the principle which has undoubtedly improved the mortality of cancer of the breast and in the treatment of cancer in all accessible lymph tracts of the body; the Wertheim operation for cancer of the uterus being somewhat analogous to the radical operation for cancer of the testicle. But as in the general adoption of the Wertheim procedure there have arisen many and serious objections to its practical application, so do we find that there has been still much hesitation in accepting the same principle in the treatment of cancer of the testicle. While the logic of the principle is fully recognized, the seemingly enormous traumatism involved is appalling to many, just as many inexperienced surgeons halt at the difficulties of a Wertheim or Jonnesco operation.

As with the Wertheim operation—regardless of technical difficulties,—the real question at issue is to what extent are the results thus far obtained by the radical or Chevassu operation superior in the prolongation and saving of life, to those of simple castration?

In the first place, what are the results that may be expected from simple castration for malignant disease of the testis?

In answering this question, the statistics are of little value, unless the type of growth is accurately ascertained and the end results carefully recorded for a sufficient number of years. In this respect, the profession is profoundly indebted to Chevassu for his most patient and critical researches. Realizing that castration for malignant diseases of the testis is justly regarded as almost a futile operation by the vast majority of surgeons, who seldom record a permanent cure—no more than simple mammectomy for cancer of the breast accomplishes a permanent cure for this type of malignant disease,—he collected in 1910 a carefully studied group of one hundred cases of simple castration. He found that, of these, only 19 per cent recovered and survived a period of four years and that 81 per cent had died

within the test period. In analyzing these cases, he found that fifty of them were mixed tumors, or teratomata, (by far the most frequent type of testicular cancer), and that in this group 94 per cent had died within the test period and only 6 per cent had survived it. The seminomes, or seminal epitheliomas or embryonal carcinomas, were forty-seven in number, and of these 25 per cent recovered and 75 per cent died. There were only three sarcomata in the group (formerly considered the most frequent type of testicular malignancy) and all these died, or 100 per cent mortality. (Chevassu; *Revue de Chirurgie,* Tome XLI, April and May, 1910.)

Hinman, in his careful study of thirty patients treated by castration at the Johns-Hopkins Hospital, shows that a cure from castration can be expected in only 15 per cent of the cases, and that the mortality rate is 85 per cent. This tallies with my own quite extensive personal experience.

Now, what can be expected of the radical operation?

While the number of cases operated on Chevassu's lines are comparatively few, these have been carefully studied, and inasmuch as the majority have been operated before 1911, sufficient time has elapsed to justify some comparative conclusions.

To quote the researches of one of the most recent compilers, O. Moscaranhas (Paris thesis, July, 1912), we find that there were thirty-one cases with three operative deaths, or 9 per cent operative mortality; twenty-seven operative recoveries, of which four were found to be inoperable on account of too extensive metastases, or 14.3 per cent inoperable. In the twenty-seven operative recoveries, there were seventeen recoveries which had survived over three years, or 53 per cent recoveries.

Hinman, in his most complete study of the reported cases of the radical operation, which amounted to a total of forty-six cases (up to December 5, 1914) shows that the combined mortality for this extensive and seemingly formidable operation is only 11 per cent, which, I believe, is a better showing than can be made for the Wertheim operation for cancer of the uterus.

"Sufficient time has not elapsed and the cases are so scattered that it has not been possible to get the ultimate results in all of the patients treated radically; 46 per cent are alive; one for five years; one for four years; five for about three years; two for over two years, and eleven for one year or less. There is a

probable cure in at least four cases which had the lumbar glands invaded with cancer at the time of operation. Simple castration could not have benefited any of these patients, and their cure is directly attributable to the early and clean removal of the affected lymph area.

The chief lesson gathered from my personal experience, as well as the study of the literature, is that the majority of the cases come to operation when the disease is too far advanced to expect a cure by either castration or the radical operation (clearly demonstrated in the observation I have reported.)

No operation can prove of permanent value when the lumbar or preaortic glands can be plainly palpated. My patient's case clearly shows that when castration was performed, nine months after the first evidence of disease in the testis, the lumbar glands were already very extensively involved, though not sufficiently to permit their recognition by palpation, though the patient was thin enough to permit of more than usual exploration by this means.

While the statistics at present available are not sufficient to justify decisive comparative conclusions, the results in some of the reported cases undoubtedly prove that quite a number of otherwise doomed individuals have been saved by the radical operation, even when impalpable metastases had occurred.

It would seem logical that dubious cases of testicular tumor should be explored promptly by direct section of the testicle, more often, and at a much earlier stage than is usually now done, and that once the diagnosis is positively made, that the best chance for permanent cure would be by clearing out the primary lymph nodes by the procedure now recognized as the Chevassu operation.

N. O. Medical and Surgical Journal

Editorial Department.

CHAS. CHASSAIGNAC, M. D. ISADORE DYER, M. D.

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CHIF.

The big fair for the benefit of the Charity Hospital is over and we hope the final returns will show that a substantial sum will accrue to the hospital, as it is badly needed and the amount of energy expended should produce results that are worth while.

The enthusiasm of the public shows that the cause was considered good and that the efforts of the hospital board in the direction of progress have been pretty generally appreciated.

We have in a modest way tried to serve the cause, but, now that all is done and it can do no harm to say what we think, we must state that we had to salve our conscience with the excuse that an emergency was being dealt with.

In principle the whole thing was wrong. A state institution should not have to pass around the hat, in the first place. This phase of the question has been talked about and written about enough; we need but refer to it. What is perhaps more serious is that begging should be done for an institution whose legal status is such that apparently any citizen of Louisiana, no matter what his personal fortune may be, has a moral and a legal right to claim services therein and therefrom free.

We say this is apparently the case because that is the latest ruling on the subject made by an attorney of the hospital. We note with satisfaction that a higher ruling is being sought for by the Orleans Parish Medical Society, and we feel sure that the Board of Administrators of the Hospital will do all in its power to obtain an authoritative decision.

The point must be settled one way or the other. Our private opinion is that it was not the intent of the founder of the hospital that any but the needy should be taken care of; nor that the State of Pennsylvania should have given material assistance to the institution except under the belief that it was to help the poor; neither that it could have been named the *Charity* Hospital if its province had been to give free service to those who could take care of themselves. Still, we are not now arguing the point. We are backing the medical profession in their request to have the matter settled.

The sovereign people may do what it pleases with its own. It may decree that it shall be with hospitals as with schools. That just as the State is now expected to give every child an education, so must it conserve and restore the health of each of its citizens.

But if that be the decision, then the people must also provide the means, and in rapidly increasing amounts, too, and no more begging must be done in the name of sweet charity.

THE NEW ORLEANS CHARITY HOSPITAL.

The New Orleans Charity Hospital has been the refuge of the sick and injured from all of the State of Louisiana and from most of the neighboring states as well. Even to-day, there is no hospital of any considerable size south of St. Louis, and there drift in cases of all sorts which might find aid elsewhere.

It has been a very long time since the State of Louisiana sup-

ported the Charity Hospital directly, and though the Hospital is administered under state regime, its revenues come from other sources outside of state funds, almost as much as they do from the state.

This fact justifies the current discussion as to the function of the Hospital so far as the public of Louisiana is concerned, and a general opinion prevails that the hospital service should be restricted to the poor, and the poor of Louisiana only.

There is some consideration to be taken of the medical staff, also, who now give their service gratis to the Hospital, although they pay a license to the state to practise medicine, and in rendering such service to the well-to-do who use the Hospital they thereby discount the opportunities the license they buy should protect.

In spite of the large reforms in administration during the past three years, the Charity Hospital of New Orleans has done well, as a recent statement would go to show. The admissions to the Hospital have increased since 1909 from 9,576 to 16,742 in 1914, and the cost of administration has increased from $203,047.00 to $297,286.00, or the maintenance has increased by only a little over 40% while the admissions increased nearly 75%.

A striking statistical deduction is afforded by the comparison of the New Orleans Charity Hospital with institutions elsewhere:

COMPARISON OF HOSPITAL COSTS—1914.

Hospital	No. Beds	Admissions	Bed Days	Per Capita
Bellevue Hospital	1,379	42,185	495,108	1.75
Louisville City Hospital	450	4,510	76,285	1.74
Boston City Hospital	995	12,803	196,688	1.81
Worcester City Hospital			97,475	1.62
St. Louis City Hospital	1,000	17,284	256,830	1.13
St. Paul City Hospital	715	5,765	162,156	1.07
San Francisco City Hospital	700	3,788	110,555	1.07
N. O. Charity Hospital	1,074	16,742	327,632	0.86

The table speaks for itself, and even if the present administration costs 40 per cent. more than it did five years ago, the comparison with other institutions would argue that the administration deserves commendation, for no one who is intimate with former and present hospital conditions can question the improved efficiency.

The New Orleans Charity Hospital has deserved public sympathy and public support and the occasional donation or bequest

to the Hospital has been well earned. But it is almost mandatory that a larger endowment should be forthcoming, or, better still, that the State Legislature should recognize the great importance of this institution with a view to an adequate provision for its maintenance.

TO-MORROW'S TOPICS.

Doubleday, Page & Co. have recently published a series of three books under the above title, written by Robert T. Morris, M. D., of New York, best known to the profession as a distinguished surgeon of rather original ideas. The set is termed "To-Morrow's Topics" evidently because most of the questions touched upon will be better understood "to-morrow,' and it deals largely with the medicine of to-morrow.

Taking one up at random, we have read the one entitled "Doctors Versus Folks," although we noticed too late it was the last of the three. This certainly has not marred the pleasure of the reading nor diminished our anticipation of the enjoyment to be derived from the two others.

A book that it must have been a pleasure to write, it will be a delight to every reader who can appreciate a pot-pourri of philosophy, science, and wit.

Beginning in a reminiscent vein, the doctor indulges in a good deal of retrospection, though admitting that this is said to be the first sign of hardening of the arteries, meanwhile imparting much information which should be very useful to the beginner and very comforting to his elder.

The author relates many anecdotes, especially of surgical cases, which are either instructive or amusing and always interesting. He does not forget to include instances of errors committed by him and frequently imparts valuable lessons by means of his stories. By the way, in speaking of the size and adequacy of fees, he quotes the case of Danna versus Williams and argues it more from the Danna viewpoint.

Much space is devoted to the question of fee splitting and his arguments against the practice should be convincing to anyone not already convinced, be he doctor or layman.

The narrative is frequently lighted up with choice specimnes of wit and humor. As a specimen of the former: "Gratitude

commonly belongs chemically among the lighter hydrocarbons and follows their laws of diffusion;" of the latter: "It is well for every man to stop once in a while to think of what sort of a collection of mourners he has in training for the final event anyway."

As it is a characteristic of most humans to admire the views of those who agree with them, we must express our appreciation of the well-balanced ideas Dr. Morris enunciates regarding specialties and specialists. He considers that specialists who have not first done general work lose a great deal besides true professional spirit and concludes that the work of specialists will extend one into the field of another until we complete a circuit "to-morrow" and arrive again at the general practitioner. He can be sarcastic, too, on this subject, as when he says: "When the gynecologist amputates a breast, that sort of case does not belong to him; it belongs to the ophthalmologist, because the patient shed tears over her trouble." What would he not say of the selfsame gynecologist who removes—prostates!

Delicious epigrams abound in this book of entertaining instruction to the layman and instructive entertainment to the doctor. We had marked many, for quotation or reference, as we read; so many, in fact, that it is impossible to give any adequate idea of them; this could be gained only by a careful perusal of the whole book, which we advise all of our readers to treat themselves to. Simply to give you a taste for them all, we shall close with a short one and a long one. "There is no royal road to diagnosis.". . ."Changes are taking place with such bewildering rapidity that the doctor is out-of-date on a subject shortly after he has brought himself up-to-date."

THE PUBLIC DRINKING FOUNTAIN.

The last word in sanitary drinking fountains has not been uttered. Even a casual observer of a public fountain must notice the varied methods pursued by the user of these commodities. The more ignorant persons imagine that the porcelain cup on the fountain must be encircled by the mouth in order to get the water; many put the lips to the porcelain to suck in the flow.

The annotation of the *Army and Navy Register* recently is, therefore, timely:

"If improperly constructed or improperly used, the bubbling drinking fountain may be a greater menace to health than the common drinking cup. The other day an inspector of the U. S. Public Health Service took a seat beside a bubbling drinking fountain in a railway station and watched the way in which it was used. Forty-seven different persons, of whom 11 were men, 22 were women and 14 were children, used the bubbling fountain. In almost every case the lips were placed almost completely around the metal ball from which the water spurted, and one small boy seemed as if he were trying to swallow it. Several of the men obviously were chewing tobacco. Of the 47 people, 4 were colored, 3 looked as though they might have tuberculosis, and 3 had an eruption upon the face."

The drinking cup was bad enough, but the bubbling fountain looks worse.

THE TREATMENT OF CANCER.

The agitation of the cancer question among the laity has already done much good. The average person now looks suspiciously upon any growth or any unusual symptom suggestive of malignancy. Honest physicians and surgeons are better able to give advice, and in time, good results may be expected in the prevention of cancer.

The natural outcome of a general agitation of so important a question, however, has been the cropping up of a large variety of unbaked cancer cures, and even reputable medical journals have given place to articles on grotesque treatments which might have passed in the days of poly-pharmacy, but nowadays they look queer.

Honest investigation of cancer goes on and the cure of early cases needs no adventurous procedures; well-established technic in topical and surgical routine already suffices.

Medical News Items

THE AMERICAN PUBLIC HEALTH ASSOCIATION elected the following officers at its annual meeting in Rochester, N. Y.: President, Dr. John F. Anderson, U. S. P. H. S., director of the Hygienic Laboratory, Washington; first vice-president, Dr. Geo. W. Goler, health officer, Rochester, N. Y.; second vice-president, Dr. Charles J. Hastings, medical health officer, Toronto, Ont.; third vice-president, Dr. Omar Gillette, Colorado Springs, Col.; treas-

urer, Dr. Lee K. Frankel, Metropolitan Life Insurance Company; secretary, Prof. Selskar M. Gunn, Boston; honorary members, General W. C. Gorgas, surgeon U. S. Army, Washington, D. C.; Dr. Stephen Smith, State Board of Charities, New York; Dr. Frederick Montizambert, director general of public health, Dominion of Canada, Ottawa, and Dr. Henry D. Holton, Brattleboro, Vt.

THE NEW MEXICO STATE MEDICAL ASSOCIATION, at its meeting in Las Vegas the second week in September, elected the following officers: President, Dr. Evelyn Frisby, Albuquerque; vice-presidents, Drs. C. S. Lorey, Las Vegas; J. W. Kinsinger, Roswell, and A. H. Delong, Gallup; secretary, Dr. I. E. McBride, Las Cruces; treasurer, Dr. F. E. Tult, Albuquerque. The next annual meeting will be held in Albuquerque.

THE MEDICAL ASSOCIATION OF THE SOUTHWEST held its tenth annual meeting in Oklahoma City, Oklahoma, October 12-13. An unusually interesting program was furnished and the clinics held for the benefit of the members of the association were much appreciated. The attendance at the meeting was large.

THE SOUTH TEXAS DISTRICT MEDICAL ASSOCIATION held its thirty-eighth semi-annual meeting in Nacogdoches, Texas, October 7 and 8, 1915.

THE AMERICAN MEDICAL EDITORS' ASSOCIATION held its annual meeting at the Hotel McAlpin, New York City, on October 18 and 19, under the presidency of Dr. H. Edwin Lewis.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION held its forty-ninth annual meeting at the Phoenix Hotel, Lexington, Ky., on October 19-21, under the presidency of Dr. Hugh Cabot, Boston.

PREVENTION OF INFANT MORTALITY.—The American Association for the Study and Prevention of Infant Mortality will hold its sixth annual meeting in Philadelphia, November 10-12. The following are among the subjects to be discussed: Eugenics; Effect of the Economic Standing of the Family on Infant Mortality; Infant Welfare Nursing in Small Cities, Towns, and Rural Districts; Institutional Mortality; Midwifery Conditions, and Treatment and Prevention of Respiratory Diseases.

RELIEF FUND FOR THE BELGIAN PROFESSION.—The report of the treasurer, Dr. F. F. Simpson, of the committee of the Ameri-

can physicians for the aid of the Belgian profession, shows, for the week ending October 9, 1915, a total disbursement of $7,310.04, and a balance on hand of $556.80. The total receipts are $7,779.84.

Error Corrected.—In the September issue of the Journal, the following statement was made: Dr. Adolph Jacobs and Dr. W. F. Scott, respectively chief house surgeon and assistant at the Charity Hospital, ended their terms during the past month. Dr. Jacobs is succeeded by Dr. B. F. Gallant, of Kankakee, Ill., formerly superintendent of the State Insane Asylum. Both Drs. Jacobs and Scott are graduates of Tulane University and will practice their profession in New Orleans. This was incorrect, as Drs. Scott and Jacobs were house officers at the hospital, of equal rank. They were succeeded by Drs. David Adiger and Bert Tillery, two graduates at Tulane, 1913. Dr. Gallant was an assistant physician at the Kankakee State Hospital, and his present position at the Charity Hospital is as first assistant superintendent.

Examination U. S. Public Health Service.—Examinations for Assistant Surgeon, U. S. Public Health Service, will be held on November 1. Applicants should address the Surgeon General at Washington, D. C.

Chaulmoogra Oil Cures Leprosy.—According to newspaper report, 23 lepers have been discharged cured from the Culion colony, Philippines, after treatment with chaulmoogra oil.

J. A. Majors Company Opens Branch Office in Dallas.—The J. A. Majors Company, New Orleans, Southwestern representative of W. B. Saunders Company, has opened an office and storeroom in Dallas. The office is located at 405-6 Juanita Building, Dallas. The branch will have a full stock of medical books and journals.

New Faces for Soldiers.—Miss Ethel B. Davis, head nurse of Bryn Mawr Hospital, Philadelphia, returned to this country recently from the American Hospital in Paris filled with enthusiasm over the facial surgery now being practiced by Dr. Blake and his assistant. Miss Davis says, "Soldiers come into the hospital with the lower part of their faces shot away. A part of one of their ribs is taken and a new jaw fashioned out of it. A few

weeks later they leave with nothing to show but a slight scar on the face."

WARNING AGAINST PLAGUE.—A warning against bubonic plague was issued on September 15 by the United States Public Health Service to port officials. Because of the fact that many countries both in South America and Europe are infected, it was urged that it will be necessary to exercise unusual precautions against the introduction of plague during the coming year. Quarantine officials in southern ports were particularly warned to watch arrivals from South America.

KEEN FELLOWSHIP.—The Corinna Borden Keen Research Fellowship in Jefferson Medical College, the income of which amounts to $1,000, has been established by Dr. William W. Keen, Philadelphia. The recipient of the fellowship must spend at least one year in Europe, or wherever he can obtain the best facilities for research in the line of work he shall select after consultation with the faculty, after which he must publish at least one paper embodying the results of his work. For further information, address Dr. Ross V. Peterson, Sub-Dean, Jefferson College, Philadelphia.

ELIZABETH STEEL MAGEE HOSPITAL DEDICATED.—On October 27, the Elizabeth Steel Magee Hospital, of Pittsburg, Pennsylvania, was formally opened, appropriate exercises marking the occasion. The conferring of honorary degrees by the University of Pittsburg was a feature of the dedication.

THE SOUTHERN MEDICAL ASSOCIATION will hold its annual meeting in Dallas, Texas, November 8-11.

FREE LECTURES ON SKIN DISEASES.—Dr. L. Duncan Bulkley and the attending staff will give a seventeenth series of clinical lectures on diseases of the skin in the out-patient hall of the New York Skin and Cancer Hospital on Wednesday afternoons, beginning November 3, 1915, at 4:15 o'clock. The lectures will be free to the medical profession on the presentation of their professional cards.

HOSPITAL FOR OMAHA COLLEGE OF MEDICINE.—The board of regents of the University of Nebraska have recently completed plans for a new hospital in connection with the College of Medicine at Omaha. The building is to be five stories in height and will consist of six wards of sixteen beds each, three receiving

rooms, six groups of isolation rooms of three beds each, and an operating room, operating amphitheatre and rooms for administration and service.

No Typhus in Serbian Hospitals.—The American Minister at Bucharest, Roumania, reports, in a cablegram dated July 26, to the American Red Cross, that during his inspection of the country he visited 75 per cent of all the Serbian hospitals and found no new cases of typhoid. The physicians say that although the malady seems to be entirely checked, it may appear again.

Fake Tuberculosis Cures.—In an address before the Federation of Labor, Dr. Charles Luck made the statement that $20,000,000 had been spent last year for "fake" tuberculosis cures, all of which were injurious to the system.

Registering Washerwomen.—Dr. S. B. Fishburne, the city health superintendent of Columbia, S. C., recently issued an order for washerwomen to hand in a statement of their names and patrons. This plan has been tried with great effect in Greenville, S. C., and other cities are expected to follow in line.

Tobacco Causes Cancer of the Mouth.—After studying 100 victims of mouth cancer, only ten of which were women, Dr. Robert Abbe, senior surgeon of St. Luke's Hospital, New York City, presents a scathing arraignment of tobacco, when it is smoked or chewed in excessive quantities. Of the ninety men with mouth cancer, all but one were inveterate smokers. Most of them smoked cigars, to the number of three to twenty a day. Five smoked only cigarettes; one consumed fifty a day. Many used a pipe, which often caused cancer to begin where the end of the pipe stem allowed the hot smoke to come upon the tongue. Thirteen had cancer inside the cheek and all of these chewed. About one-tenth of the patients plainly owed their affliction either to a rough tooth, or to hot burning drinks, or both. The other nine-tenths of the cases are chargeable to tobacco.

To Prevent Tuberculosis.—The National Association for the study and Prevention of Tuberculosis formed plans at its recent convention for a "tuberculosis week," December 6-12, 1915. The society will try to have everyone, sick or well, visit a physician on December 8. Stores, factories and offices will be asked to have employes examined. On December 10, school chil-

dren all over the country will be instructed in healthful living. Clubs, fraternities and societies will be asked to give at least one day during the week to aid the campaign. It is also hoped to have tuberculosis discussed in more than 125,000 churches on "Tuberculosis Sunday," December 12.

HONOR TO DR. S. WEIR MITCHELL.—Mr. and Mrs. Walter D. Ladd have presented to the Jesup Memorial Library in Bar Harbor a bronze bust of the late Dr. S. Weir Mitchell.

WAR AND MEDICAL WOMEN.—A statement to the effect that "the war constitutes the turning point in the position of medical women, for whom there are new openings and new opportunities in these directions," was recently signed by Premier Asquith, Earl Curzon and Arthur J. Balfour, and calls attention to the London School of Medicine for women, which is now doubling its plant to cope with the war-time increase in the demand for women doctors.

AMERICAN MEDICINE GOLD MEDAL AWARD.—Dr. Rupert Blue, Surgeon General, U. S. Public Health Service, has been awarded the medal for 1915 by the trustees of the American Gold Medal Award. Dr. Blue has received this honor as the American physician who, in the opinion of the trustees, has performed the most conspicuous and noteworthy service in the domain of medicine and surgery during the past year.

PLAGUE CASE IN CALIFORNIA.—The first death from bubonic plague since October, 1913, recently occurred in Contra Costa County, California. The man is said to have contracted the disease from ground squirrels, many of which are known to be infected with the disease.

SANITARIUM OPENS FOR TREATMENT OF PELLAGRA.—Fort Worth, Texas, has recently established the Southern Medical Sanitarium for the treatment of pellagra and nervous diseases. The sanitarium occupies the site of what was formerly known as Arlington Heights Female College, which building has been remodeled and made modern in equipment. A full staff of physicians and nurses are in attendance.

DR. OSLER THANKS AMERICAN FRIENDS.—Mr. Charles H. Grasty, formerly of the *Baltimore Sun*, recently received the following cablegram from Sir William Osler, regius professor of medicine, Oxford University, England: "Thank American

friends for all their kind help, moral and material, and tell them not to be discouraged. It is a long and terrible struggle, but democracy will win. England was never so full of the spirit of Washington and Lincoln as she is to-day." According to Mr. Grasty, Dr. Osler is in close touch with the real war situation and is very active in the war management on the surgical and medical side, and American generosity has enabled Dr. Osler to carry out very extensive and far-reaching plans.

EUGENICS AND GREAT MEN.—In an editorial entitled "Great Men Are Biological Surprises," the *Southern Practitioner* quotes from the *Pacific Medical Journal*: "Some of the most efficient individuals have been born in ill health and with bad bodies. Emanuel Kant, the great philosopher and teacher of modern intellect, was so delicate a boy that his life was despaired of; Herbert Spencer was so feeble that he was not given a regular education, but no Englishman has a more marked influence upon his generation; Pope had Pott's disease of the spine and could not stand erect without his leather jacket; Sir Isaac Newton was in his childhood so small and frail that he was thought not worth while keeping alive. Genius means hard work, close observation, patient application and indefatigable perseverance. Eugenics could never prognosticate a Martin Luther, a Napoleon nor an Abraham Lincoln. What eugenics could produce a Beethoven, a Mozart or a Wagner? What combination of Adonis and Venus will give us a Shakespeare, a Gœthe, a Michæl Angelo, a Raphæl, a Luther Burbank or an Edison?"

PERSONALS.—Dr. G. L. Clements, of Joplin, Mo., purchased last month ten acres of fine Louisiana orange land on the lake front from the New Orleans Lake Shore Land Company.

Dr. and Mrs. John Williamson Caldwell, of New Orleans, celebrated the fiftieth anniversary of their wedding on September 20. Dr. Caldwell was at one time a professor in Tulane University of Louisiana, and also a practicing physician of New Orleans.

Prof. Ernst Fuchs has retired from the chair of ophthalmology at the University of Vienna and also from the leadership of the first university ophthalmologic clinic, after thirty years of service at Vienna. Prof. S. Bernheimer, of the University of Innsbruck, will succeed Dr. Fuchs.

It is reported that Dr. Joseph A. Blake, formerly of New York

City, and one of the founders and chief surgeon of the American Ambulance, Paris, has withdrawn from the staff of the institution to enter the British hospital service.

Dr. Richard Pearson Strong has resumed his position as professor of tropical medicine in Harvard Medical School. Dr. Strong has returned to this country from Serbia.

Dr. R. H. Creel, U. S. P. H. S., has returned from his vacation and will continue the rat-proofing work in New Orleans under Federal authority.

Among the doctors who have returned from their vacations and resumed practice are: Drs. John T. Leake, Paul L. Reiss E. F. Bacon, Edward B. Ducasse, J. A. Gorman, John B. Elliott, Jr., T. M. Terry, W. D. Phillips and Isadore Dyer.

Dr. W. B. Collins, health officer of the State of Texas, spent a few days in New Orleans last month.

REMOVALS.—Dr. G. C. Kilpatrick, from Pensacola to Van Antwerp Building, Mobile, Alabama.

Drs. DeRoaldes and Lynch, from 624 Gravier Street to 634 Maison Blanche Building, city.

Dr. Arthur Caire, from 702 Audubon Building to 511 Medical Building, city.

Dr. W. M. Weatherall, from Garnett to Star City, Ark.

Dr. Lucien A. Fortier, from 4901 Camp to 5008 Magazine Street, city.

Dr. Robert Bernhard, from 604 Macheca to 711 Macheca Building.

Dr. S. W. Stafford, from 604 Macheca Building to 711 Macheca Building.

Dr. J. E. Brierre, from Cusachs Building to 830 Audubon Building.

Dr. F. Temple Brown, from Cusachs Building to 810 Maison Blanche.

Dr. W. P. Bradburn, from Cusachs Building to 741 Carondelet.

Dr. N. F. Thiberge, from 604 Macheca Building to 846 Audubon Building.

Dr. J. W. Simmons, from Eye, Ear, Nose and Throat Hospital, New Orleans, to Abilene, Texas.

The *Medical Herald,* from 1013 Gloyd Building to 613 Lathrop Building, Kansas City, Missouri.

MARRIED.—On October 5, 1915, Dr. Amos Hall Fortner to Miss Martha Bryant, of Whitewright, Texas.

DIED.—On September 20, 1915, Dr. B. A. Colomb, of Colomb Park, La., aged 53 years. Dr. Colomb was a graduate of Tulane University in the early eighties.

Book Reviews and Notices

Text Book of Surgical Operations, by Fedor Krause and Emil Heymann, Translated into English and Edited for American Readers by Albert Ehrenfield. In Six Volumes. Vol. I. Rebman Company. New York.

This book will, we believe, be well received in this country. Only the first volume is before us, giving general surgical technique and a discussion of the treatment of wounds and affections of head and face, the extirpation of tumors of the face, plastic operations on face, surgery of eye, ear and nose, surgery of trifacial nerve and extirpation of Gasserian ganglion. The text is clear and the illustrations excellent.

We think it an admirable work, but believe that the translator made a mistake in changing the text so as to make it conform to American practice. It would have been much better to state the German view and give in notes any suggestions intended to indicate the American practice. In other words, he has naturalized the German book without leaving the hyphen.

The work, however, as it stands, is to be highly commended.

F. W. PARHAM.

Collected Papers of the Mayo Clinic, Rochester, 1913. W. B. Saunders Company, Philadelphia and London.

It would be difficult and useless to attempt to review in anything like an adequate manner the rich store of contribution to surgery to be found in this volume. It illustrates well the progress of surgery during the past year on many topics. It fitly represents the work of this great clearing house of surgery and ought to be in the hands of every surgeon who wishes to keep abreast of the times in surgery.

PARHAM.

Outlines of Internal Medicine. For the use of Nurses. By Clifford Bailey Farr, A. M., M. D. Lea & Febiger, Philadelphia and New York.

The scope of this excellent hand-book is comprehensive and the information it furnishes is accurate and modern. The chief criticism that might be leveled against it is that the author in attempting to cover the whole field of internal medicine necessarily has at times to be so brief as to be inadequate unless the reader has already some idea of the subject being discussed. On the whole, however, the book will fulfill its purpose, namely, to supply the basis for a course of systematic lectures to nurses and in addition to serve as a work of reference to which the nurse may turn for information concerning the rarer cases which may come under her observation. It may be heartily recommended to the graduate as well as to the undergraduate nurse.

I. I. LEMANN.

Diarrheal, Inflammatory, Obstructive and Parasitic Disease of the Gastro-Intestinal Tract. By Samuel G. Gant, M. D. LL. D. W. B. Saunders Company, Philadelphia and London, 1915.

The author has given us a thorough and scientific description of the diarrheal diseases, as well as an eminently satisfactory work from the practical therapeutic standpoint. The appearance of this monograph is timely for it will serve to stress the fact that diarrhea is merely a symptom, not a disease, and that its cause must be worked out before any efficient treatment can be instituted. The practitioner will find this book a welcome addition to his working library, for it covers its subject in a more detailed and complete fashion than is possible in the text books and systems of general medicine.

LEMANN.

Surgery of the Blood Vessels, by J. Shelton Horsley, M. D., F. A. C. S. C. V. Mosby Co. St. Louis, Mo., 1915.

This readable book, written by one of the ablest workers in this country along the lines indicated by the title, covers its subject fully, yet without the introduction of unnecessary matter. Beginning with the histology of the blood vessels, it gives in succession the indications of blood vessel suturing, its history, its technique and its application to various conditions, including transfusion, lateral anastomosis, aneurism, varices, etc. It is of particular interest as giving the technique of the author for bloodvessel suturing, based on much experimental work in his laboratory. Both students and active practitioners will find much profit in reading this book, containing as it does the methods in use by Shelton Horsley in the practise of a new and developing branch of surgery.

H. B. GESSNER.

The Principles of Bacteriology. By A. C. Abbott, M. D. Ninth revised edition. Lea and Febiger. Philadelphia and New York.

The many good features of former editions have all been retained and the book has been brought up to date. The very fact that the

ninth edition has been called for emphasizes the popularity and usefulness of this book intended specially for the beginner.

C. C. BASS.

Essentials of Laboratory Diagnosis. By F. A. Faught, M. D. Fifth revised edition. F. A. Davis Company. Philadelphia and London, 1915.

In this complete revision of this most popular and useful laboratory manual the author has eliminated largely the discussion of clinical pathology. The material has been more or less rearranged in order to avoid parallelism between methods. BASS.

Alveodental Pyorrhea, by Charles C. Bass, M. D., and Foster M. Johns, M. D. W. B. Saunders & Co. Philadelphia and London, 1915.

The work of Bass and Johns with Riggs' Disease has already attracted large attention and it is certainly timely that they should have put their findings in book form for general accessibility. Not only the physician and dentist, but the layman as well, may read this book with profit.

It is certainly revolutionary, in that it attacks misconceptions and disabuses many of us of what were formerly convictions regarding bad teeth. That the teeth form a vast group of morbid activities must be proven, but the authors carry conviction on one point, viz., that the *Ameba buccalis* is a party highly criminal in Riggs' disease and the cure of Riggs' Disease is dependent upon the destruction of this organism. The frank confession of the authors that the Endameba is not known to cause Riggs' disease disarms all attack from those dentists who ride their own hobbies in theories of the etiology of this affection. The authors say:

> "We do not know of any conclusive evidence that the endamebæ do or do not directly damage or break down tissue. It is quite possible that they could not produce pyorrhea unaided by their symbiotic bacteria and spirochetes, any more than the bacteria and spirochetes can produce the disease unaided by the endameba. There are many instances of such obligatory symbiosis in nature."

The review of the whole subject of pyorrhea is comprehensive and the evolution of the findings of the *Endameba buccalis* as a causative factor is detailed. Plain explanation is given for the deductions and complementary advice follows, covering the care of the teeth and the use of ipecac in the treatment. The authors emphasize the importance of dental surgery in connection with the specific use of emetin and ipecac and throughout an appeal is made to the intelligence of the reader in undertaking an essential prophylaxis.

The book is well presented and must serve a large educational purpose; the illustrations, however, most appeal to all who see the book, not only for their judicious selection, but because the greatest part of them are original and have been made in the laboratories of Experimental Medicine, at Tulane University, and they are evidences of the personal endeavor of the authors of the book.

The scientific value of this book of Bass and Johns must be determined by the final results—but the authors and the publishers have together presented a book which is a credit to them in its makeup and in its material service to all concerned.

DYER.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, etc. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. Volume XVII, No. 2, 1915. Lea & Febiger. Philadelphia and New York.

Quite an array of material is offered in this volume, contributed by Coley, Gerster, John G. Clark, Stengel and Edward Jackson. The subjects fill a large scope and as usual are comprehensive and valuable. While most of this volume is made up of recent surgical topics, we must emphasize the value of Stengel's chapter on Diseases of the Blood, etc., covering, as it does, a review of modern ideas on the subject and including an excellent discussion of some of the ductless glands. This publication needs to be read to be appreciated and it has no superior in its place as a review of current medicine and surgery.

DYER.

Selected Addresses. By James Tyson, M. D., LL.D. P. Blakiston's Son & Co. Philadelphia.

The foreword of Dr. Tyson's book is a sufficient "raison d'etre" for its publication:

> "Dedicated to the numerous physicians who from time to time have patiently sat under my instruction during a long career as a teacher of medicine."

For what is more gratifying to the followers of a loved teacher than the opportunity of sitting in the quiet of after years and reviewing some of the personal views of that teacher? The classroom and the hospital may give the students glimpses of his teacher, but the written page of memoirs brings out the heart touch which makes the memory stronger and better. Even we who were not privileged to "sit under" Doctor Tyson find much of interest and of profit in these addresses—and it really needs a few "Tysons" to add to contemporaneous commentary in medicine to make future medical history for America.

DYER.

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The Book of the Fly, by G. Hurlstone Hardy.

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Mode of Action and Use of Emetin in Entamebiasis, by Randolph Lyons, M. D.

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Dementia Precox Studies; Removing Visible Restraint from the Harmless Insane, by Will H. Solle. **The Adrenal Mydriasis of Dementia Precox,** by Bayard Holmes, M. D.

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Your Rights and Duties Under the Health Laws of New York City, Metropolitan Life Insurance Company.

The Hemlock Spruce, by Oliver A. Farwell.

Medical Education and Municipal Hospitals, by August Schachner, M. D.

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MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans for September, 1915.

Cause.	White	Colored	Total
Typhoid Fever	4	2	6
Intermittent Fever (Malarial Cachexia)	2	1	3
Smallpox	.....	.....	....
Measles	1	.....	1
Scarlet Fever	.....	.....	....
Whooping Cough	.....	.....	....
Diphtheria and Croup	12	5	17
Influenza	.....	.....	....
Cholera Nostras	.....	.....	....
Pyemia and Septicemia	.....	.....	....
Tuberculosis	31	36	67
Syphilis	1	.....	1
Cancer	17	10	27
Rheumatism and Gout	.....	.....	....
Diabetes	5	1	6
Alcoholism	.....	.....	....
Encephalitis and Meningitis	.....	.....	....
Locomotor Ataxia	1	.....	1
Congestion, Hemorrhage and Softening of Brain	19	17	36
Paralysis	3	1	4
Convulsions of Infancy	1	.....	1
Other Diseases of Infancy	10	7	17
Tetanus	2	2	4
Other Nervous Diseases	4	.....	4
Heart Diseases	42	38	80
Bronchitis	4	2	6
Pneumonia and Broncho-Pneumonia	11	18	29
Other Respiratory Diseases	1	1	2
Ulcer of Stomach	.....	1	1
Other Diseases of the Stomach	.....	1	1
Diarrhea, Dysentery and Enteritis	33	16	49
Hernia, Intestinal Obstruction	4	2	6
Cirrhosis of Liver	8	1	9
Other Diseases of the Liver	1	1	2
Simple Peritonitis	.....	1	1
Appendicitis	5	2	7
Bright's Disease	22	9	31
Other Genito-Urinary Diseases	10	7	17
Puerperal Diseases	5	.....	5
Senile Debility	1	.....	1
Suicide	4	.....	4
Injuries	29	22	51
All Other Causes	23	22	45
Total	316	226	542

Still-born Children—White, 30; colored, 37. Total, 67.

Population of City (estimated)—White, 272,000; colored, 101,000. Total, 373,000.

Death Rate per 1000 per Annum for Month—White, 13.94; colored, 26.85. Total, 17.44. Non-residents excluded, 15.57.

METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure 29.94
Mean temperature ..... 81.
Total precipitation ..... 10.83 inches
Prevailing direction of wind, southeast.